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ABSTRACT

The attitudes and opinions of the Massachusetts Institute of Technology alumni were surveyed, indicating a lack of unanimity on any point in the survey. What did emerge was a tapestry of opinions and views that present a view of the alumni and the institute. These views cover the reputation and quality of MIT, student experience at MIT, recent trends at the institute, MIT's financial situation, associations and ties with MIT, alumni-MIT communications, institute's service to the alumni, and the potential for alumni-MIT involvement. (MJM)

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

REPORT ON THE ALUMNI SURVEY

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Analytical Studies and Planning Group
Office of the President and the Chancellor
January, 1975

PREFACE

This report on the Alumni Survey is an account of an extraordinary experience -- that of visiting, by telephone, with a representative sample of several hundred alumni across the country. Each visit -- always by appointment and lasting an average of 53 minutes -- was an adventure in evoking and listening to attitudes, opinions, suggestions, and criticisms about the Institute.

In the pages that follow we present the highlights of what we have learned thus far, and we point out some differences of opinion and attitude which emerged from discussions with alumni from different Classes. We report what alumni had to say about M. I. T. and about its meaning in their lives, while they were students here and since. At the end of the report we raise some questions relating to future agenda for M. I. T. and its alumni. Although we refer to recommendations made by alumni, we make no specific recommendations of our own in this report. The survey was designed as a catalyst for thought and for action by the Institute, by the Alumni Association, by groups of alumni and by individuals.

Our gratitude goes to all of the people who took part in the design and the execution of the survey over the past year. By far the most enjoyable part for all of us who have worked on the survey has been the experience of talking with the 738 men and women who gave so generously and willingly of their time and thoughts. These human exchanges, one-to-one, have made the project not only worthwhile, but personally rewarding.

On September 14 at the Alumni Officers Conference in Cambridge, we gave a preview of the survey report and began a discussion on what needs to be done, how, and by whom. In the weeks and months to come, we look forward to continuing these discussions, and we urge all of you who read this report to join in. We look for your responses to this report, and more: we look for your initiatives in listening, sharing, and caring about M. I. T. and about the people who make up our community on campus and beyond.

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STAFF AND ACKNOWLEDGEMENTS

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Murray Dalziel, our research assistant, whose skills and persistence were keys to the coding, computation, and analysis; Peggy O'Brien, who worked long and late as coordinator of the interviewing process; Robert Fein, for his critical insight and continual support; Cathy Buckley, whose talents came through in many ways as interviewer, coder, and analyst; and Janet Brown, Mary Burnley, and Julia Swain, whose exacting sense of organization was essential to the smooth operation of the project.

Donald P. Severance and the staff of the Alumni Association, for their complete and continual cooperation throughout the survey.

The team of interviewers included: Geoffrey Beane, Michael Blaber, Cathy Buckley, Holly Carter, Cecelia D'Oliveira, Robert Fein, Jeffrey Feuer, Patricia Garrison, Wayne Harding, Artie Helgason, Carol Johnson, Paul Kasameyer, Louisa Kasdon, Susan Knight, Donald Paul, Robert McMahan, Georgia Persons, Lawrence Russell, Gilbert Scharfenberger, Kenneth Schwartz, Steven Swanger, and William Zwicker. The interviewing team also included: Arnold Judson, Francis Mead, Louis Rosenblum, Max Seltzer, and Walter Smith, alumni from the Boston area who volunteered to help with the survey.

The coders were: Ronald Anastasia, Cathy Buckley, Holly Carter, Steven Cohen, Artie Helgason, Robert McMahan, Barbara Morash, and Elizabeth Rogers.

In addition, those who joined us with a variety of valuable support activities included: Tamas Eger, Judy Gordon, Barbara Hoffman, Nancy Lombardi, Therese McCarthy, Scott Moor, Jean Morgan, Peggy Murrell, Mary Nelson, Guy Nordenson, Kyle Richardson, Carl Strauss, and Geoffrey Tudor.

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I. INTRODUCTION

A. Purpose of the Survey

The measure of an institution can be taken in terms of its traditions, its achievements, and its hopes. In an important sense, too, it can be taken in terms of its people -- in how they contribute to the larger society and how they relate to each other. M. I. T. has always believed in serving its graduates, and in turn depends upon them to represent the Institute well to the outside world, to serve as trustees, to help provide financial support, to encourage high-caliber applicants, and to lend expertise as consultants and participants in the development of Institute programs.

In a time of changing expectations and increased demands on educational institutions, there is a need to build an even greater sense of partnership between M. I. T. and its alumni. Such a partnership, to be effective, must be supported by opportunities for service both to and from alumni. The purpose of the survey was to listen to and learn from alumni, as a step toward bringing the Institute and its graduates closer together, and to do so in ways that would benefit both.

The survey was designed so that we might gain a better understanding not only of alumni feelings, attitudes, and perceptions, but an understanding, in a way, of the Institute itself, for the reality of M. I. T. is in some measure what its alumni think it is. It surely can be measured by the contributions it has made to the lives of those who studied and worked here during some of their more formative years.

B. Highlights of the Survey Findings

Nothing resembling unanimity was found on any point in the survey. What did emerge from our study was a tapestry of opinions and views which sharpen our understanding of alumni and the Institute -- a collection of insights that may help to forge a stronger relationship between the Institute and the men and women who once were its students.

In candid and open discussions, we learned what alumni tend to think about, as well as the range of their opinions on various issues. We learned what kinds of images came to mind when we asked for their impressions

of M.I.T. Given this kind of discussion, no single topic was mentioned in every interview.

In some ways, the enthusiastic and thoughtful participation of so many alumni told us as much about their attitudes toward M.I.T. as did the particular things they had to say during the interviews. The warmth, and depth, and engaging character of the conversations, as well as their comment on specific issues, point out the high regard and goodwill most alumni have for the Institute. And whether they like or dislike the place, approve or disapprove of recent changes, they often make a point of saying that M.I.T. is unique, and has a special character found nowhere else.

In general, we found that there is substantial interest in M.I.T., and in hearing from M.I.T., but alumni did not seem to know a great deal about what is going on at M.I.T. today. Their views of the Institute are largely colored by what they knew of the place when they were students here. While most said that communications from M.I.T. gave them what they wanted to know, many remarked that there were other or different kinds of information they would like to have. In general, they seemed to be in favor of most of the recent trends which they knew about and cared to comment on.

In looking to the future, alumni appear to believe strongly that M.I.T. should apply its resources to problems related to how people interact with their environment and with each other. They referred to problems concerning energy, transportation, nutrition, and health planning, for example. Some viewed this as an extension of the Institute's traditional concern with the practical use of knowledge. (Underlying this expectation was an assumption that such problems can be solved -- perhaps a reflection of M.I.T.'s emphasis on problem-solving as a way of education.)

Most alumni thought it was very important to have studied at M.I.T., and most (particularly those who were here only for graduate school) said they would come again if they were of college age today. The alumni gave quite pragmatic assessments of their M.I.T. education. They spoke most frequently of the skills they obtained and the prestige they acquired by having gone to M.I.T. -- referring to both primarily in terms of contributions to their professional careers. Few spoke of education at M.I.T. as contributing to a widening of more general intellectual horizons, or to a deeper understanding of themselves or the world around them.

While most alumni place great value on having an M.I.T. degree, their personal experiences at the Institute are not so favorably recalled. Some alumni talked about what they considered the impersonality and coldness

of the Institute's environment. Many commented on the extraordinary pressure and the pervasive work ethic at M. I. T., and although some viewed these as necessary attributes of their education, others wondered whether the price of that education may not have been too high in personal terms. Alumni expressed respect for the professional stature of the faculty, but some viewed the faculty as not particularly interested in students or not especially effective as teachers and advisors. As many people talked with mixed feelings about their experiences at M. I. T. as had generally positive recollections, and some had generally negative memories of their years at the Institute.

Alumni relations with M. I. T. are characterized by a wide diversity of interests and contacts. While graduate school alumni thought of their association with M. I. T. primarily in terms of their department or research group, the undergraduate alumni thought of their association as much by living group as by Class, and even more by department. In addition to the more formally organized alumni activities, we found a striking variety of informal and varied communications and contacts between alumni and the Institute. In general, when alumni reach back to the Institute, they connect in different ways, at different points in time, and for different reasons.

In assessing the potential for greater communication and contact between the Institute and alumni, we found that about one out of six alumni is already close to M. I. T. in terms of interest and activities. Looking beyond this core group, we estimate that the creative energies of more than half the alumni could be brought into a more dynamic partnership, if the Institute could effectively meet their interests and needs.

C. Survey Methods and Sample

By conducting in-depth interviews of a representative sample of alumni, we tried to elicit more reliable, comprehensive, and useful information than could be obtained through questionnaires, which often are unable to measure the full range of opinion or intensity of response. Experience in surveys of a similar nature has shown that interviewing by telephone is a very effective technique. We found also that this format assured a

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*See the Appendix for a detailed discussion of the background and methods of the survey and a description of the sample population. The Appendix also includes a discussion of statistical significance within our sample. (See page 65 .)

certain economy and permitted efficient organization and monitoring of the interview situation. During the interviews, which were structured conversations rather than question and answer sessions, alumni were encouraged to talk about any part of M.I.T. or of their experience here.

The kinds of questions used in the survey were designed to be as open-ended as possible, in order to allow respondents to raise whatever issues were on their minds, and to tell us not only what they were thinking, but why.

Throughout the fieldwork for the survey, one of the recurrent questions had to do with how we would preserve the richness of alumni views in a useful and manageable way. One alumnus said at the end of his interview,

> You've done a good job of covering it all, and I hope my answers help. I imagine you'll just throw it all into the computer.

We have, in fact, relied on computer processing as one tool to help us organize the 650 hours of spontaneous and thoughtful discussion that were the heart of the survey. As noted above, however, the interviews were not succinct question and answer sessions, and did not give us information in "byte-size" pieces. We were not trying to test a model of what we thought alumni views might be; rather we collected whole conversations and let that information suggest the clusters of opinion that emerged. What we report here are the patterns of opinion and viewpoint which were volunteered at many points throughout the interviews. The categories we report on were devised after the interviews, in order to distill and communicate what was said in an organized manner. The statistical data presented here help to support and shape the profile of alumni views, but do not by themselves capture the richness -- the individuality, flavor, and shades of meaning -- which came through the interviews and which we hope to convey in the text of this report.

Our main sample included 489 respondents selected randomly from files maintained by the Alumni Association. It was stratified in terms of 1) year of graduation, and 2) whether the alumnus had been an undergraduate student or had attended M.I.T. only as a graduate student. The number of alumni in each of the subgroups shown in the following table is proportional to the representation of that group in the alumni population.

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Sample Stratification and Size

Total Sample: 489	Undergraduate Classes: 326		Graduate School Only Classes: 163	
	1963-73:	75	1963-73:	63
	1952-62:	77	1952-62:	50
	1941-51:	74	pre-1952:	50
	1930-40:	51		
	pre-1930:	49		

NOTE: Those designated as "undergraduate" alumni in this report include some who continued on at M.I.T. for graduate study. Those designated as "graduate school only" alumni attended M.I.T. only as graduate students.

The sample included only those alumni living in the continental United States and Canada. Alumni who were currently graduate students, faculty, or staff members at the Institute were excluded. Our sample therefore represents about 50,000 of the total alumni population of 60,000. In addition to the 489, we randomly selected additional samples from some special groups within the total alumni population, such as women, recent black alumni, and alumni officers -- which brought the total number of respondents to 738. Because of their relatively small proportion in the total alumni population (and therefore in our main sample), we generated special samples from these groups in order to reflect their opinions and attitudes more reliably. This report will be on the main sample of 489 only -- representing the overall views of the alumni population. We are still studying the additional special samples.

Alumni in the sample first received a letter from President Wiesner, explaining the nature of the survey and asking for their participation. This was followed by a telephone call from a member of the Alumni Survey Study Group to schedule an appointment. If the alumnus or alumna agreed to an interview (and most did), a time was set, and at the appointed hour the respondent was called. (If we were unable to schedule an interview, we replaced that alumnus with another from the same subgroup population, so that the representativeness of the sample was maintained.) During the session, the interviewer wrote down the respondent's own words on an "interview guide." Interviewing began in April and ended in July; classifying and analyzing the information began during the summer.

Those interested in a more detailed discussion of the background and methods of the survey should refer to the Appendix, which also includes a description of the sample population. This may be of particular interest to those who desire a closer look at the survey as an open-ended communication process rather than simply as a data-gathering vehicle.

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II. ALUMNI VIEWS OF M.I.T.

During the interviews, we learned as much (if not more) about M.I.T. as we did about alumni relations. From comments made by alumni throughout the interviews, we were able to gain a better understanding of what M.I.T. means to those who have been students here, and who thus hold a continuing membership in the M.I.T. community. They gave us their views of M.I.T.'s reputation (including the reputation and quality of the faculty and students) and of their experience as students here, and they shared their perceptions and attitudes concerning recent trends and developments at the Institute. On the whole, the people we talked with seemed more interested in telling us what they thought about M.I.T. than in discussing alumni relations. Most seemed to take a generally favorable view of the Institute, but they were by no means uncritical of what they viewed as problems or undesirable aspects of M.I.T.'s programs or policies.

> In reporting on our findings, we note again that the open-ended nature of the interviews invited alumni to raise those issues that were on their minds. Almost no topic was discussed by every respondent. The voluntary nature of the comments means that categories of opinion on any single topic rarely add up to 100 percent.

A. Reputation and Quality of M.I.T.

There is no question that the Institute is regarded highly by its graduates. During the interviews, two-thirds of the respondents volunteered positive and often extremely favorable comments about the reputation of M.I.T. Graduate school alumni were more apt than undergraduate alumni to refer to M.I.T.'s outstanding reputation. Factors seen as contributing to M.I.T.'s high reputation included technical and scientific excellence, a

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tradition of innovation, high scholarship, and discipline, and a special ability to contribute to the solution of major problems of national or worldwide import.*

There was a general recognition of M.I.T.'s prominence that was often coupled with an expectation that M.I.T. would continue to be one of the world's outstanding educational and research institutions. Alumni referred to the Institute most frequently as a scientific, engineering, or research oriented institution, but rarely did they speak of it as a college or a university. Very often there was an underlying theme that M.I.T. is a special or unique place. This line of thinking was used by some to argue that M.I.T. should not enter new fields but should concentrate on its traditional strengths, and by others to argue that the Institute has a responsibility to embark on new enterprises and new fields of inquiry. There was, however, a substantial expectation (discussed later) that M.I.T. should broaden its mission or bring its strength to bear more on the problems of modern society.

Comments on the Faculty. Almost one-third of the sample volunteered comments on the outstanding professional reputation (and often world renown) of M.I.T. faculty members,** with graduate school alumni volunteering significantly more comments on this topic. These comments referred most often to faculty members' professional prestige and excellence in research.

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*Proportion volunteering positive or extremely favorable comments on the reputation of M.I.T.

Total Sample (69%)	Undergraduate (66%)					Graduate School Only (75%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	56%	61%	73%	78%	63%	65%	82%	82%

Only 2% made mixed or negative comments on M.I.T.'s reputation, and the remaining 29% did not volunteer any comments on this subject.

**Proportion volunteering positive or extremely favorable comments on the professional reputation of M.I.T. faculty members:

Total Sample (30%)	Undergraduate (25%)					Graduate School Only (39%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	25%	27%	23%	24%	27%	43%	42%	30%

(A negligible portion made mixed or negative comments about the reputation of the faculty.)

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Regarding the quality of teaching and the nature of student-faculty interaction, however, the comments were substantially more critical. Respondents did not question the high caliber of the faculty, but they did not always see students as the primary beneficiaries of that talent. For example, more than one-quarter of the sample volunteered comment on the subject of faculty interest in students and on the quality of teaching, and here the mixed or negative comments were twice as frequent as the positive comments or recollections.* Some who made positive comments liked the fact that faculty members were deeply involved in research, because it made students' own work more interesting and challenging, and brought the excitement of current research into the classroom. Others talked about individual faculty members who had been particularly inspiring as teachers. Some of the more unfavorable comments referred to faculty members' inaccessibility, to a perceived emphasis on research at the expense of teaching, and to a lack of competence or caring as advisors. The tone of many of the critical comments is illustrated by the following examples:

> I did have trouble with calculus. The instructor was a genius but he just flew through the material and left us in the dust; too smart to be a good teacher.
>
> It's left up to the students to try and extract the knowledge that's there. The prevalent attitude of the faculty is "I'm the best there is -- if you want to learn, you'll have to come to me. Don't expect me to go to you."

Comments on the Student Body. Alumni views of M.I.T. students were composed of their impressions of students currently or recently at M.I.T., as well as their reflections on their own student days. (Respondents typically talked about their impressions of students at some earlier point in time if they had no knowledge of current students.) We note again that in some respects M.I.T. is what alumni think it is. Therefore, the fact

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*In terms of volunteered attitudes on faculty interest in students and on the quality of teaching, there were no significant differences between undergraduate alumni and alumni who had attended M.I.T. only as graduate students. The significant differences were in terms of Class groupings:

Classes	Positive	Mixed/Negative	Total Who Commented
1952-73	12%	23%	35%
Pre-1952	4%	14%	18%
Total Sample	9%	19%	28%

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TABLE 1

Volunteered Comments on M. I. T. Students*

	Superlative/ Positive Comments	Mixed/Negative Comments**	Total Who Commented
Undergraduate Classes			
1963-73	51%	33%	84%
1952-62	57	30	87
1941-51	56	16	72
1930-40	47	24	71
pre-1930	41	30	71
Total UG	51%	27%	78%
Graduate School Only Classes			
1963-73	53%	33%	86%
1952-62	66	10	76
pre-1952	52	22	74
Total GSO	56%	23%	79%
TOTAL SAMPLE	53%	25%	78%

*Views given of students recently or currently at M. I. T., as well as of less recent students.

**"Mixed" means a combination of positive and negative comments on M. I. T. students; more than half of the comments in this column are mixed.

that their views of M.I.T. or of the people here may be based on old information is less important than the fact that these are the current impressions.

Over three-quarters of the respondents offered some comment on the quality or character of M.I.T. students, with twice as many giving positive or very favorable, as distinct from mixed or negative, assessments. (See Table 1.) On the positive side, M.I.T. students were typically viewed as extraordinarily intelligent, capable, serious, and well-prepared, especially in their particular field. This opinion did not seem to vary much between older and younger alumni. Some alumni commented on the unsettling experience of entering M.I.T. as freshmen and finding themselves surrounded by what appeared to be nothing but geniuses and class valedictorians. One alumnus recalled:

> When I came here, I was impressed. When I arrived, I was impressed with myself. Shortly after, I was impressed with everyone else and worried about myself.

Those who made critical or negative comments often conveyed the impression that while M.I.T. students were technically and professionally capable, they sometimes lacked certain qualities of breadth or leadership -- including an awareness of, or interest in, broader issues outside the laboratory or classroom. Whether this was seen primarily as a characteristic of the students themselves (the result of the admissions policy) or of the Institute's educational program was not clear. There was, however, frequent comment on the hard work ethic prevailing among the student body -- an orientation that tended to focus students' interests, time, and attention on the development of exceptional capability in a particular field, but which did not foster a great deal of speculative or introspective thought. In the words of one respondent:

> Work dominated things and limited the exploration of relationships. I wondered how people felt about other people... Work and some sleep took priority over all -- there was a total preoccupation with work.

Among those who referred specifically to current students, only a few commented unfavorably on the students' personal appearance, political activism, or alleged cynicism. On the whole, there was a general consensus that M.I.T. students (either current or past) were extraordinarily talented and bright -- though some considered their range of interests too narrow or their awareness of broader social issues insufficient.

To sum up, M.I.T. alumni have a generally favorable view of the quality and reputation of the Institute. They respect the faculty's excellence in

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TABLE 2

Importance of Having Studied at M. I. T.
(Direct Question)

	Very Important	Somewhat Important	Of Little Importance	Total Who Commented
Undergraduate Classes				
1963-73	68%	17%	12%	97%
1952-62	50	35	12	97
1941-51	63	27	7	97
1930-40	70	18	10	98
pre-1930	78	12	6	96
Total UG	65%	23%	9%	97%
Graduate School Only Classes				
1963-73	68%	26%	6%	100%
1952-62	64	30	6	100
pre-1952	74	12	12	98
Total GSO	69%	22%	8%	99%
TOTAL SAMPLE	66%	23%	9%	98%

research, but some question their effectiveness as teachers. They recognize the high intellectual quality of the student body, but some wonder whether students are sufficiently aware of wider issues.

B. Experience at M.I.T.

Not surprisingly, there were a large number of comments volunteered throughout the interviews on respondents' experiences while they were students here. In addition, in order to gain an even better understanding of what M.I.T. has meant to alumni, we asked two direct questions on this topic:

1. How important is it to you that you studied at M.I.T.?

2. If you were of college age today, would you choose to come to M.I.T.?

The answers to these questions, as well as the comments volunteered throughout the interviews, portrayed dimensions of life at M.I.T. which are not planned into the curriculum or the residential program, but which are significant forces in the education of M.I.T. students and powerful shapers of their lasting impressions.

Importance of Having Studied at M.I.T. Both graduate school and undergraduate alumni showed similar, positive responses to this question. (See Table 2.) For every one who indicated that it was of little importance to have studied at M.I.T., there were about three who thought it was somewhat important, and eight who thought it was very important to have studied here. There may be a tendency for alumni from older Classes to attach a higher importance to their M.I.T. education, but the only group that seemed to show any significant deviation from the overall pattern was the undergraduate alumni who were here during the 1950s. About half of this group attached high importance to having studied at M.I.T., compared with an average of over two-thirds for the other groups of undergraduate alumni.*

* In looking back over their responses, it is not easy to explain why undergraduate alumni from the Classes of 1952-62 attached less importance to their having studied at M.I.T. Their comments dealt with a variety of factors, including the type of school M.I.T. was at that time (still strongly focused on engineering), the impact of cutbacks

continued on next page

The importance of having studied at M.I.T. was expressed most frequently in terms of skills and prestige, in almost equal proportion.* Most alumni tended to make quite pragmatic assessments of the value of an M.I.T. education. They talked most often of its contribution to their professional careers, and much less often of a general widening of intellectual horizons, or to a deeper understanding of self and the world around them.

Such a pragmatic assessment of an M.I.T. education is revealed in the following comment by one alumnus:

> I like being associated with the school's reputation. When you first get out, it is helpful in getting started. What I learned in terms of how to solve problems -- in using rational analysis and the tools of mathematics -- was also very helpful.

Those who mentioned the importance of the skills provided by an M.I.T. education talked about such factors as the provision of practical and theoretical skills necessary for a career, and especially of habits of work and thinking essential to professional success. One alumnus commented:

> M.I.T. did give me something: the self-confidence to know that however hard or seemingly impossible the task, I can do it.

Those who mentioned the importance of an M.I.T. education in terms of prestige often referred to the usefulness of an M.I.T. degree for their

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in engineering fields, the relevance of their M.I.T. education to their work and overall success, and the feeling that they could have received an equally good education elsewhere. This phenomenon may relate to where these people are in their career development, a subject discussed in a paper by Professor Lotte Bailyn of the Sloan School, "Engineering Based Careers: A Study of the Relation to Work at Mid-Career." An article based on this research will appear in an upcoming issue of Technology Review. This study was based on a survey (by Lotte Bailyn and Edgar Schein of the Sloan School) of selected Classes of M.I.T. alumni who graduated during the 1950s. A digest of this survey, "Where Are They Now, and How Are They Doing?", appeared in the June, 1972, issue of Technology Review, pp. 32-40.

* In assessing the importance of having gone to M.I.T., 51% mentioned the skills acquired and 47% mentioned prestige. Overall, 78% mentioned at least one of these factors, with 20% mentioning both.

	Total Sample	Undergraduate					Graduate School Only
Classes:		63-73	52-62	41-51	pre-40	Total UG	Total GSO (no variations among subgroups)
Skills:	51%	59%	48%	62%	48%	54%	47%
Prestige:	47%	39%	51%	47%	42%	44%	53%

resume, and in opening doors to jobs or graduate school. As one put it: "A degree from M.I.T. is a highly saleable commodity." While some remarked on the usefulness of their degree at the early stages of their careers, others spoke of its importance throughout their careers, in terms of promotions and professional contacts. There is a slight tendency for graduate school alumni (relative to undergraduate alumni) to speak of the importance of an M.I.T. education more often in terms of prestige and less often in terms of skills:

> The major importance to me is that I have the name on the sheepskin... I haven't used the academic knowledge that I got there though, unless it is so much a part of me that I don't realize it.

Many of those -- both graduate and undergraduate alumni -- who did not attach particularly high importance to their having studied at M.I.T. commented that their job experiences had been more valuable than their academic experience, that they felt they could have received an equally useful education elsewhere, or that they had changed professional fields to such a degree that their M.I.T. education was no longer relevant.

> The courses I took at M.I.T. weren't relevant to what I'm doing now... I'm somewhat bitter about the general situation in engineering.

Likelihood of Attending M.I.T. Again. In general, alumni appeared to have solid confidence in the value and credibility of an M.I.T. education, and almost three-quarters would probably come to M.I.T. again. (See Table 3.) Said one respondent:

> If I were of college age today? I'd just grit my teeth and do it again.

Among the undergraduate alumni, people from the more recent and from the oldest classes were most likely to come to M.I.T. again. Those who were here in the fifties were least likely to say that they would attend again -- not surprising, since they were also least likely to say that it was very important to have studied at M.I.T.

Alumni who attended M.I.T. only as graduate students were significantly more likely than undergraduate alumni to say they would attend again (81 percent vs. 66 percent). A substantial portion of the graduate school alumni specifically volunteered that they would come again as graduate students but not as undergraduate students. For some, the proverbial

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TABLE 3

Would Come to M. I. T. Again
(Direct Question)

	Yes/Probably	No/Not Sure/ Probably Not	Total
Undergraduate Classes			
1963-73	73%	27%	100%
1952-62	51	49	100
1941-51	61	39	100
1930-40	65	35	100
pre-1930	85	15	100
Total UG	66%*	34%	100%
Graduate School Only Classes			
1963-73	81%	19%	100%
1952-62	80	20	100
pre-1952	82	18	100
Total GSO	81%**	19%	100%
TOTAL SAMPLE	71%	29%	100%

*Six percent of these indicated that they would come again, but as graduate students only -- not as undergraduates.

**40 percent of the GSO's from the Classes of 1952-73 who said they would probably come to M. I. T. again (and 17 percent of the pre-1952 GSO Classes) specifically indicated they would come again as graduate students, but not as undergraduates.

drink from the firehose seemed too much to expect of undergraduates. Said one man:

> In looking at the way undergrads had the work piled on them, that seemed excessive. I told my children not to go. Despite that, my youngest daughter is there as a student, and is enjoying it immensely.

As a rule, the high positive response to the questions on the importance of their M. I. T. education and on whether they would attend again was related to the quality and character of the academic and professional programs of the Institute. In fact, many alumni qualified their response by saying that they would attend M. I. T. again if their career goals were the same.

Atmosphere and Environment at M. I. T. Comments volunteered on the atmosphere and environment of the campus produced a less favorable picture than might be suggested by comments on the academic program alone. Not surprisingly, those who recounted generally positive or fond memories of their years at M. I. T. were significantly more likely to say that they would come again than those who reported negative or unhappy experiences here. We found that graduates from the last decade were most likely to talk about their experiences at the Institute.

In order to get an understanding of alumni feelings on the experience of being at M. I. T., we considered relevant comments volunteered throughout the interview. Some of the comments we used in assessing these feelings were general in nature; some referred to individual relationships or particular activities; and some referred to specific attributes such as "pressure" or "independence." We also made an overall assessment of the respondents' feelings about their experiences at M. I. T., based on a total reading of the entire interview. From these various indicators, we found that we could characterize the kinds of feelings most people had about their experiences while they were students at M. I. T.

About one-third recalled generally positive memories, another one-third expressed mixed feelings, and about one-eighth expressed generally negative feelings about various aspects of their years at M. I. T. (See Table 4.) Among undergraduate alumni, generally positive recollections were shared more often by those from the older Classes. Those who expressed mixed feelings were more likely to be the more recent undergraduate alumni. Those with more negative memories often referred to the

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TABLE 4

Feelings Expressed About the Alumnus' Experience While at M. I. T.

	Generally Positive	Mixed	Generally Negative	Total Who Commented
Undergraduate Classes				
1963-73	29%	47%	19%	95%
1952-62	21	43	13	77
1941-51	22	35	11	68
1930-40	37	24	4	65
pre-1930	45	12	8	65
Total UG	29%	34%	12%	75%
Graduate School Only Classes				
1963-73	35%	29%	17%	81%
1952-62	26	26	14	66
pre-1952	38	20	14	72
Total GSO	33%	25%	15%	73%
TOTAL SAMPLE	31%	31%	13%	75%

An index of the alumnus' response to the environment and atmosphere -- the experience of being at M. I. T. -- rather than to the academic program and quality of education.

impersonality and coldness of the atmosphere* or to excessive competition and pressure,** with some referring to M.I.T.'s "factory" image. The pressure and competition, while regarded as necessary conditions for their academic preparation by some, were more often seen as having an adverse effect on the overall environment. Said one graduate: "Everyone is a potential threat rather than a potential friend."

It was not unusual to hear someone speak of the excellent academic program in tandem with reflections on unhappy personal experiences:

> I think favorably of it from an educational and research standpoint, but I found it an impersonal, cold, and unfriendly place... M.I.T. was not much of a place to be in terms of lifestyle, but I am still capitalizing on what I learned there. It was extremely rewarding, but it was not a very happy place to be.

These recollections illustrate a tension that was apparent in the attitudes of many alumni toward M.I.T.: satisfaction or pride in being associated with an outstanding educational institution, coupled with some negative feelings about the impact of M.I.T. on their personal lives while they were students here. While most alumni viewed their M.I.T. education as important and rewarding because of its contribution (in skills and prestige) to their professional development, many criticized the atmosphere and environment in which they studied.

C. Recent Trends at the Institute

In considering trends that mark a changing institution, we found the survey useful in establishing some benchmarks and helping to calibrate the views of those of us who are at M.I.T. with the views of others in the alumni community. Alumni comments on recent trends at the Institute were characterized by their diversity. In soliciting these views, we asked alumni the following question:

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*Voluntary comments on the impersonality and coldness of the M.I.T. environment were made by 12% of the sample, while only 1% referred to M.I.T. as a warm, friendly place.

**Voluntary comments on the pressure at M.I.T. were made by one-quarter of the respondents.

TABLE 5

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Composite Measure of Overall Attitudes Toward Trends in the Academic Program*

	Only Positive Comments	Mixed/Negative Comments	Total Who Commented
Undergraduate Classes			
1963-73	40%	21%**	61%
1952-62	39	18	57
1941-51	35	14	49
1936-40	23	18	41
pre-1930	37	8	45
Total UG	36%	16%	52%
Graduate School Only Classes			
1963-73	30%	8%	38%
1952-62	30	12	42
pre-1952	30	24	54
Total GSO	30%	14%	44%
TOTAL SAMPLE	34%	15%	49%

*Reflecting volunteered comments on such trends as broadening curriculum, responsiveness to societal issues, flexibility, interdisciplinary efforts, expansion of humanities offerings, cross-registration programs, etc.

**Over half of these responses were mixed or ambivalent, whereas in the rest of this column, the proportions reflect predominantly negative attitudes.

Do you have any comments to make about recent developments or trends at the Institute over the last few years?

The responses indicate what the alumni thought were important trends, both in answer to this question and at other points in the interview. We did not ask about any trends specifically; rather, the trends mentioned were brought up by alumni on their own initiative. For this reason, the information here is an indicator not only of their opinions, but also of what they tend to think about when they consider changes at the Institute. Trends frequently commented on related to: 1) admissions (37 percent); 2) changes in the academic program (49 percent); 3) the development of the humanities and social sciences at M.I.T. (28 percent); and 4) limitations on research directly related to defense (22 percent).

Admissions. Among those who volunteered comment on this topic,* there was consistent interest in maintaining standards and quality. One-eighth of the respondents specifically mentioned the importance of preserving what they saw as M.I.T.'s traditional elitism, and one-tenth spoke of the need to broaden the admissions policies in order to achieve a better mix of students' interests and backgrounds.

Support for M.I.T.'s efforts to increase the numbers of women and minority students was volunteered by about one-fifth of those interviewed. Alumni who graduated within the past decade were most likely to comment on and support this trend, while undergraduate alumni from before 1941 were least likely to do so.** Few people made direct negative comments about the admission of women or minorities to M.I.T., although some commented that efforts in this area should not modify M.I.T.'s high admissions standards.

Trends in the Academic Program. About half of the respondents commented on one or more trends in the academic program. (See Table 5.) These included:

-- broadened curriculum (to address, for example, connections among science, technology, and social issues);

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* The high frequency of comments on trends in admissions may be due in part to the fact that we also asked alumni their views on the "quality and composition of the student body."

** Support of efforts to increase women and minority students was volunteered by 20% of the total sample; 31% of 1963-73 alumni; 8% of pre-1941 undergraduate alumni. The other subgroups did not vary significantly from the average of 20%.

TABLE 6 **BEST COPY AVAILABLE**

Attitude Toward Expansion of the Humanities and Social Sciences

	Positive Comments	Mixed/Negative Comments	Total Who Commented
Undergraduate Classes			
1963-73	16%	12%*	28%
1952-62	17	8	25
1941-51	23	9	32
1930-40	16	10	26
pre-1930	27	6	33
Total UG	19%	9%	28%
Graduate School Only Classes			
1963-73	11%	2%	13%
1952-62	28	6	34
pre-1952	16	22	38
Total GSO	18%	9%	27%
TOTAL SAMPLE	19%	9%	28%

*The relatively high mixed/negative response in this group reflects in part alumni ambivalence about the desired balance between increasing the number of humanities subjects (seen as a positive trend) and explicitly expanding M. I. T. 's mission to include greater emphasis on the humanities and social sciences.

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-- expansion of humanities and social science offerings;

-- increased flexibility or attention to individual interests (including such changes as the Independent Activities Period in January, pass/fail grading, and the Undergraduate Research Opportunities Program);

-- development of interdisciplinary programs; and

-- growth of cross-registration programs and cooperative efforts with other schools.

Overall, alumni who volunteered comment favored these trends in the ratio of 2 to 1. Almost all who mentioned expanded interdisciplinary efforts, greater flexibility, and the broadened curriculum were strongly in favor of such trends.* The mixed or negative comments often reflected a concern that M. I. T. was moving away from its "original" or unique mission and standards; others conveyed a somewhat skeptical "wait and see" attitude.

The generally favorable attitude toward trends in the academic program resulted in large part from the many comments on the expansion of the humanities and social sciences. All except the older graduate school alumni tended to favor this trend. (See Table 6.) Those people with mixed feelings appeared to be somewhat apprehensive about broadening M. I. T.'s mission too extensively into the humanities and social sciences, although they said they might favor increased subject offerings in these areas. Those who opposed expansion in these areas often indicated that M. I. T. should focus and build on its traditional strengths rather than try -- perhaps without success -- to become a full university. These people see M. I. T. as offering unique and outstanding opportunities which might be diluted if it were to expand its mission much beyond its central strengths in science and technology.

*These trends were favored in the ratio of 5 to 1. The proportion who mentioned these trends were:

	Undergraduate			Graduate School Only		
Classes:	63-73	52-62	pre-52	63-73	52-62	pre-52
Expanded interdisciplinary efforts	11%	8%	3%	13%	6%	0%
Increased flexibility	25%	12%	5%	11%	2%	2%
Broadened curriculum (as a general concept)	12%	29%	11%	6%	10%	14%

Among those who favored expansion in the humanities and social sciences, many felt that M.I.T. has done well in bringing a greater concern for ethical, economic, and social factors into its curriculum and educational mission. Some felt that moving more into the social sciences was a logical extension of M.I.T.'s tradition of excellence and of focusing on important problems of the times. Others felt that the expansion of humanities contributed to a more liberal education than was available when they were students here.

A major theme woven through the interviews had to do with M.I.T.'s role in bringing the resources of science and technology to bear on the problems of scciety. When we asked alumni to talk about what they thought were M.I.T.'s most important missions for the future, two-fifths said they thought M.I.T. should take an active role in addressing current social problems in such areas as energy, pollution, health care, poverty, and problems created by technology.* Some who saw this as an important mission thought M.I.T. should address only the technical aspects of these problems, while others advocated M.I.T.'s becoming more actively engaged in the economic, social, and political aspects as well. Some of these people mentioned M.I.T.'s responsibility to impart to students a greater social awareness and sense of accountability. Those more knowledgeable about M.I.T.'s current programs were more likely to talk about their expectation for M.I.T. to address social problems.

In addition to those who felt M.I.T. should take a more active role in addressing social problems were those (13 percent) who felt that M.I.T. could best contribute to society in what they regard as the Institute's more traditional role of maintaining leadership in science and technology, of creating new technologies, and of addressing the lack of public understanding of science and technology.

Relationship of M.I.T. to the Government. Another trend, mentioned by about one-fifth of those we talked with, concerned the relationship of M.I.T. to the Federal government, and was introduced most frequently by comments on the Institute's decisions to divest the Draper Laboratory

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* Proportion of alumni who volunteered comment that M.I.T. should take an active role in addressing such social problems:

Total Sample (40%)	Undergraduate (38%)					Graduate School Only (45%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	49%	48%	35%	27%	18%	48%	42%	44%

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and to curtail defense related research on campus.* Overall, there was a slight tendency for alumni to disapprove of these changes. People in military service were most likely to volunteer comment on this subject, and almost all of them strongly disapproved of the changes in policy and direction which they saw.** The only group which seemed to approve of the trend toward limitations on defense related work were undergraduate alumni from the last decade.

Among those favoring the limitations, some believed that certain kinds of military research (especially weapons research) are not appropriate missions for the university; others thought that the university may be compromising its independence if it relies too heavily on government or defense funding. In addition, while some mentioned the importance of M. I. T.'s contributions to national defense during World War II, the view was expressed that today's priorities require a shift to such issues as energy, environment, nutrition planning, health, and transportation systems.

Those who oppose cutbacks in defense related research often mentioned the facts that M. I. T. has made special contributions to national defense, and has developed much of its strength from its relationship with those sectors of society involved in national security and industrial development. For these people, to sever such connections would be to divest the university of important strengths, resources, and responsibilities.

Political Demonstrations. The political demonstrations in the late 1960s constitute a related topic which was mentioned by almost one-quarter of the alumni. (Since defense work at M. I. T. was one of the important issues associated with the demonstrations, one might expect that the two issues would be mentioned together somewhat frequently. This in fact

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*Volunteered attitudes toward changing policies or directions in M. I. T.'s defense related work:

Classes:	Total Sample	Undergraduate					Graduate School Only		
		63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
Favorable	9%	17%	6%	9%	6%	6%	13%	8%	2%
Mixed/ Unfavorable	13%	5%	12%	16%	14%	18%	13%	8%	18%
Total Who Commented	22%	22%	18%	25%	20%	24%	26%	16%	20%

**Six percent of the main sample were working directly for the military; almost one-third of these volunteered comments on the subject, all mixed or unfavorable.

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occurred in less than one-third of the cases in which at least one of the issues was mentioned.) Some people merely noted that the demonstrations had occurred, but more were critical of the protests as examples of what they regarded as undesirable or inappropriate student activity occurring on campuses across the country at that time. Some thought that these events put the Institute in a bad light; a few could not understand how this could have happened at M. I. T.

Perhaps most significant in terms of this report are the attitudes volunteered by almost one-sixth of the alumni on how they felt the demonstrations were handled by M. I. T.* Here, the comments were slightly unfavorable toward M. I. T., with most of the critics indicating that M. I. T. had, in their view, given in too easily to the demands of the demonstrators. The demonstrations were very much on the minds of undergraduate alumni from before 1930; their feelings about the handling of the demonstrations were divided about equally.

In summary, while alumni seem generally to approve of most trends and developments they see at the Institute, they do not seem hesitant to express their reservations or criticism. Based on comments throughout the interviews, we note that only about two-fifths of the respondents indicated more than an incidental acquaintance with what has been going on at M. I. T. Not surprisingly, those indicating current knowledge of M. I. T. were more likely to be recent graduates.**

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*Volunteered comments on M. I. T.'s handling of the demonstrations:

	Total Sample	Undergraduate					Graduate School Only		
Classes:		63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
Favorable	6%	5%	3%	12%	2%	14%	2%	4%	10%
Unfavorable	9%	7%	10%	8%	8%	16%	5%	10%	12%
Total Who Commented	15%	12%	13%	20%	10%	30%	7%	14%	22%

**Proportion of alumni who indicated some knowledge of current programs and activities at M. I. T.:

Total Sample (42%)	Undergraduate (41%)					Graduate School Only (44%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	52%	43%	42%	29%	33%	57%	38%	34%

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D. M.I.T.'s Financial Situation

In developing a collage of alumni attitudes and perceptions of the Institute, we asked for perceptions of M.I.T.'s financial situation.* About one-sixth thought the Institute had a serious financial problem, one-half thought M.I.T. had some problem, and the remaining one-third were equally divided between those who thought M.I.T. had no problem and those who had no idea. Those who were more likely to perceive the problem as acute tended to be the undergraduate alumni from before 1952. Direct knowledge of M.I.T.'s financial situation seemed to be low, with many extrapolating from the general economic climate to estimate M.I.T.'s financial situation. Some comments:

> It's obvious that M.I.T. is getting clobbered by the government and by inflation.
>
> While most private colleges are in dire need, M.I.T. does have good endowment...but the tuition is becoming so high that no one can afford to attend M.I.T.
>
> I don't know M.I.T.'s financial needs...M.I.T. should be telling us. Generally, I think M.I.T. is pretty well off.

Of those who gave reasons to support their views about M.I.T.'s financial situation,** more mentioned signs of financial problems than mentioned signs of strength. Those referring to financial problems made the following kinds of observations: all institutions are having problems, therefore, M.I.T. must have problems; inflation is getting serious;

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*Perception of M.I.T.'s financial situation (direct question):

	Total Sample	Undergraduate		Graduate School Only
		52-73	pre-52	All Classes
Acute problem	18%	13%	24%	17%
Some problem	53%	58%	48%	53%
No problem	14%	14%	14%	14%
No idea	15%	15%	14%	16%
Total Who Commented	100%	100%	100%	100%

**About two-thirds of the sample gave reasons to support their views of M.I.T.'s financial situation.

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high student costs indicate a need for more funds; and changes in patterns of government funding must be affecting M. I. T.* Some alumni concluded that M. I. T. must have a need because of its repeated fund appeals; others indicated that they didn't always believe what the appeals said.

Many who saw M. I. T. as having little or no financial problem commented on such signs of financial strength as the size of the endowment, the amount of government support, and the new building construction on campus. About one-sixth of the respondents indicated that while M. I. T. may have financial problems, it is probably better off than most colleges and universities. (Recent graduate school alumni in particular felt that M. I. T. was in a strong position financially, compared with other colleges or universities.)

When asked about the importance of alumni support, slightly over one-third of the respondents thought it constituted an important or significant (quantitative) part of the Institute's total financial picture, and another one-third thought it played a small or insignificant part.** (The remainder didn't know or didn't care to comment.) Undergraduate alumni before 1941 attached higher significance to alumni support than did alumni from more recent Classes, who were more likely to see alumni support as small compared with other sources such as government or industry.*** Very few respondents talked about alumni support in specific qualitative terms. Those who did, mentioned its importance as an influence on other sources of support, as a major source of unrestricted income, as a way of helping to meet current expenses, to reduce deficits, or provide "extras," or as a way of bringing alumni closer to the Institute.

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*Each of these observations was made by between 10 and 15% of the alumni.

**Comments on quantitative importance of alumni support:

	Total Sample	Undergraduate			Graduate School Only		
		41-73	pre-41	Total UG	52-73	pre-52	Total GSO
Significant	37%	36%	49%	40%	28%	38%	31%
Insignificant	34%	35%	22%	31%	44%	32%	40%
Total Who Commented	71%	71%	71%	71%	72%	70%	71%

***About one-third of the undergraduate alumni from the Classes of 1963-73 specifically mentioned their feeling that alumni support is small compared with government or industrial sources, or that only large donations from alumni are particularly significant; one-quarter of the graduate school only alumni from the Classes of 1952-73 made similar comments. Less than 15% of the remaining (older) alumni made such comments.

III. ALUMNI RELATIONS

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As noted earlier in this report, a major impetus for the survey was an interest in exploring new ways to develop communications and partnership between M.I.T. and alumni. In assessing the potential for alumni relations with M.I.T., we found that a solid foundation exists in alumni attitudes toward the Institute. A strong majority (three-quarters) expressed a positive disposition toward M.I.T. at one point or another during the interviews.* This was equally true of those who had been here as undergraduates and those who had been here only as graduate students, with a favorable orientation toward the Institute highest among people who have been out the longest. It should be noted that "general disposition" toward M.I.T. as an indicator of alumni attitudes was determined by assessing comments from throughout the interview; it was not determined from a direct answer to a specific question.

The survey showed a solid base of goodwill upon which new kinds of communications and activities with alumni can be built. There is, however, no unanimity of opinion on any area. One of the strongest messages that comes through in the survey is that alumni are individualistic, and that when they reach back -- if they reach back -- to connect with M.I.T., they connect in different ways, at different points in time, and for different reasons.

The diversity of alumni viewpoints and relationships is reflected in what we learned about their ties with the Institute, the degree to which they

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*Proportion of alumni who expressed positive disposition toward M.I.T.:

Total Sample (77%)	Undergraduate (78%)					Graduate School Only (76%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	75%	66%	81%	88%	86%	73%	74%	82%

Most of the remainder did not express an opinion one way or another. Very few alumni were "negatively disposed."

We assessed an alumnus' current disposition toward M.I.T. irrespective of his or her interest in M.I.T. or experience as a student here. There is a high degree of association, however, between those with positive attitude toward M.I.T. today and those who had more positive experiences when students here, or who would come again, or who valued the importance of their having gone to M.I.T.

TABLE 7

Ways Alumni Think of Their Association with M. I. T.
(Direct Question)

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	Department/ Research Group	Class	Living Group	Specific People or Activities	Alumni Association/ Clubs	Other	None	Total Who Commented*
Undergraduate Classes								
1963-73	56%	28%	48%	36%	0%	15%	7%	100%
1952-62	58	36	38	18	1	13	6	100
1941-51	39	28	32	22	4	12	15	99
1930-40	41	20	20	27	6	6	24	98
pre-1930	33	51	22	12	8	10	10	90
Total UG	47%	32%	34%	24%	3%	12%	12%	98%
Graduate School Only Classes								
1963-73	87%	6%	6%	29%	2%	11%	3%	100%
1952-62	66	12	14	28	4	10	16	100
pre-1952	52	8	24	44	2	10	10	100
Total GSO	70%	9%	14%	33%	2%	10%	9%	100%
TOTAL SAMPLE	55%	24%	27%	27%	3%	11%	11%	99%

*Because many alumni mentioned more than one way in which they think of their association with M. I. T., the percentages add across to a number larger than the figure in this column. It should be noted that the data on the type of association mentioned as most important provide a picture very similar to the above table, which includes all mentions.

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identify as M. I. T. alumni, their reasons for coming back to campus, and their comments on communications with M. I. T. and on the ways M. I. T. might be of service to them.

A. Associations and Ties with M. I. T.

Almost as varied as their views of the Institute are the ways in which alumni think of their associations with M. I. T. Graduates do not share a single, common bond to the campus. As students here, they come to terms with this place in their own ways, and after they leave, they carry some of these relationships and attitudes with them.

Identification with M. I. T. Although the majority of respondents thought their M. I. T. education was very important, we found that only one-third of the respondents identify themselves (or are identified) frequently or actively as M. I. T. alumni in their work or private life.* Those who do, often speak with pride of their association with M. I. T. Many found an identification with M. I. T.'s reputation and prestige to be useful professionally -- sometimes in rather unexpected fashion:

> I live in a world that is class-conscious. Most people here are ring-knockers -- they hit the table with their rings. I didn't buy an M. I. T. ring until I got to this job. I bought one in self-defense, so now I can knock the table too.

About half of the respondents identified themselves as M. I. T. alumni infrequently or only in casual ways. Though they may wear the M. I. T. ring, some indicated that as they moved on in their careers, it became less important or necessary to identify publicly with M. I. T. Some

*There was little difference between graduate school only and undergraduate alumni with respect to frequency of identification with M. I. T.

	Identification with M. I. T. (Direct Question)			
Classes	Frequently or Strongly	Infrequently/ Mildly	Never or Negative	Total Who Commented
1963-73	42%	39%	10%	91%
1952-62	28%	57%	10%	95%
pre-1952	32%	48%	13%	93%
Total Sample	34%	48%	11%	93%

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TABLE 8

Reason for Being on Campus within Last Five Years
(Direct Question)

	Faculty/ Professional[1]	Alumni Activity[2]	Casual Visit[3]	Other Specific Reasons[4]	Total on Campus[5]
Undergraduate Classes					
1963-73	20%	3%	37%	23%	83%
1952-62	27	4	25	9	65
1941-51	23	16	22	3	64
1930-40	13	10	12	4	39
pre-1930	6	27	4	4	41
Total UG	19%	11%	22%	9%	61%
Graduate School Only Classes					
1963-73	33%	0%	25%	10%	68%
1952-62	32	2	24	4	62
pre-1952	10	0	22	4	36
Total GSO	26%	1%	24%	6%	57%
TOTAL SAMPLE	22%	7%	23%	8%	60%

(1) Recruiting for company, attending professional meeting or departmental convocation, collaborating on research, visiting a faculty member, attending course or seminar, using library, etc.

(2) Attending Class reunion, Alumni Association, or official Institute activities (advisory boards, Visiting Committee, Corporation meeting, etc.).

(3) Visiting friends, looking around, showing M. I. T. to family, etc.

(4) Using cultural or recreational facilities, getting transcript, attending fraternity activity, shopping at the Coop, etc.

(5) The percentages add across to the total proportion of alumni who were on campus (after graduation) within the past five years.

emphasized that it is the quality of the individual, not the institution, which contributes most to professional success. About one-tenth did not make it known that they had graduated from M.I.T. Of these, some were proud to have come here but did not want to brag or be stereotyped; others felt M.I.T. had no part in their lives at all; and a few expressed hostile feelings toward the Institute.

When asked whether there were any particular ways in which they thought of their association with M.I.T., alumni were characteristically diverse in their responses. (See Table 7.) Not surprisingly, graduate school alumni tended to think of their association with M.I.T. primarily in terms of their department or research group, and less in terms of their Class or living group. Undergraduate alumni, on the other hand, thought of their association with M.I.T. as much by living group as by Class, and even more by department. A good many of both the graduate and undergraduate alumni thought of M.I.T. in terms of specific people they knew or activities they took part in while students here. As one alumnus put it:

> A place is people to me. When I lose touch with the people, I lose touch with the school.

Visits and Contacts with M.I.T. since Graduation. It may be surprising to some that 60 percent of our sample (representing as many as 30,000 alumni) have visited the campus within the last five years. Those who come back tend to be those who live the closest, although as many as two-fifths of those from west of the Mississippi had been back within the last five years, compared with three-quarters of those from the New England area.

The reasons for coming back to the campus provide another index of the diversity of alumni ties or interests in M.I.T. (See Table 8.) Some of these alumni visitors (predominantly older undergraduate alumni) came for such alumni activities as Class reunions, Alumni Association or Institute committees or council meetings. A greater number (about one-quarter of our sample) came for professionally related reasons such as attending a professional meeting or departmental convocation, consulting with a faculty member, attending a course or seminar, collaborating on research, or recruiting for their company. An equal proportion came on "casual visits" -- to see what has been going on since they were here, to show the school to their family or friends, to compare M.I.T. with the place and the people they knew as students, or (perhaps most importantly) to visit old friends. These casual visits are intriguing, both because of their large number and because they are in a sense hidden from the more formal network of alumni relations.

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The pattern of recent visits is borne out in the overall contacts alumni have had with M. I. T. since graduation. About four-fifths of the alumni have had some type of contact since they were students here. For those who were graduate students only and for the more recent undergraduate alumni (1952-73), the contacts were predominantly informal and tended to be for professionally related purposes (for example, correspondence or visits with faculty members). For undergraduate alumni who graduated prior to 1952, the kinds of contacts with M. I. T. have tended toward the more formally organized alumni activities.* Apart from diversity, the important point that emerges is the high frequency of informal contacts that alumni have with the Institute. This is apparently much higher than the more formally organized kinds of associations. Graduate school alumni in particular seem to have frequent informal contact with M. I. T.

B. Alumni - M. I. T. Communications

Interest in communications between the Institute and alumni also demonstrates the variety of ways in which alumni think of or relate to the Institute. We found that about three-fifths of the alumni expressed positive interest in M. I. T.** This level of interest is an important factor as one thinks about opportunities for communication between M. I. T. and its alumni. More often than not, the people we talked with were generally satisfied with communications from M. I. T., although many made specific suggestions for improvement or named a particular topic on which they would like more information. Those who had a stronger interest in M. I. T. were more likely to make suggestions and criticisms or to indicate a wish for information.

In order to assess the extent of alumni needs and the degree of their satisfaction in communications, we asked whether the information they

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*Note that this is not a measure of professional versus "alumni" interests, because some of the alumni activities (Club meetings, alumni seminars, department convocations, etc.) have a professional orientation as well.

**Proportion of alumni who expressed positive interest in M. I. T.:

Total Sample (58%)	Undergraduate (57%)					Graduate School Only (60%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	59%	51%	58%	47%	73%	65%	56%	56%

"Interest" was coded from comments made throughout the interview. Though most who showed positive interest expressed interest in communications, the code also includes expression of interest in various programs or activities.

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received from M. I. T. gave them what they wanted to know. In answer, about one-third either explicitly stated that the information they received did not completely meet their needs or made specific suggestions or criticisms about present communications.* Their comments ranged from general assessments of the usefulness or quality of the information received, to specific comments on such current communications efforts as Technology Review, the Report of the President and the Chancellor, departmental newsletters, or announcements and fund requests from the Alumni Association. Some made specific requests for information about a particular academic area, about their department, or about what was going on at the Institute.

Comments on Technology Review. The alumni magazine, understandably, was a major focus for much of the discussion on communications. About 70 percent of the sample acknowledged receiving Technology Review currently or recently,** and most of them said they look at it frequently.

Readership of the magazine tends to be selective: about one-sixth read the magazine fairly thoroughly, about half read only those sections which are of particular interest, and the remaining third tend to glance through it or to look at it only occasionally, if at all. Not surprisingly, the people most interested, knowledgeable, and involved in M. I. T. are most likely to receive Technology Review and to be its most faithful readers.

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*Proportion of alumni who felt that communications from M. I. T. did not completely meet their information needs:

Total Sample (32%)	Undergraduate (33%)					Graduate School Only (28%)		
Classes:	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	40%	32%	36%	27%	27%	32%	26%	26%

Although almost three-fifths commented that communications from M. I. T. were about right or gave them what they wanted, only about half of these were alumni who indicated (at some point in the interview) a positive interest in M. I. T. On the other hand, of those who felt that communications from M. I. T. did not completely meet their needs, almost three-quarters were interested. In other words, two-fifths of those who expressed interest in M. I. T. felt that communications did not completely meet their needs, compared with one-fifth of those who did not express interest in M. I. T.

**About 80% of the alumni from the most recent decade receive Technology Review, presumably because of the policy of sending the magazine to all members of the most recently graduated classes; almost 85% of the pre-1930 undergraduate alumni in the sample receive Technology Review, but only about 60% of the undergraduate alumni from the Classes of 1930-40 receive the magazine.

The magazine has several major sections: the feature articles, campus news, and (in the version going to undergraduate alumni) class notes. When talking about the parts of the magazine which they found most interesting, people tended to mention more than one section. Many more (particularly graduate school alumni) expressed interest in the feature articles than in the campus news section.* Recent alumni and alumni who are more actively involved with M. I. T. were more likely to mention interest in campus news. The class notes were of interest to about four-fifths of the undergraduate alumni -- particularly those from the Classes before 1930 and from the most recent decade.

In discussing Technology Review, some alumni made general observations on the magazine as a whole; some commented on specific sections or items. The general comments were mostly favorable, but even the most positive in their praise sometimes made suggestions for improvement. Overall, half of the alumni receiving Technology Review made suggestions regarding ways they felt the magazine could be improved to serve their needs better.**

The suggestions covered a wide range of topics, which can be grouped into the following general areas:

-- the amount or type of Institute news (e.g., more information on students, activities, campus life, general programs and policies);

-- the depth, length, and subject areas of feature articles;

-- news of M.I.T. departments, faculty, curricula, and research activities; and

-- miscellaneous comments dealing with design of the magazine, having more news on alumni or Club activities, a calendar of events, listings of job openings, and so forth.

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*Four-fifths of the alumni expressed some interest in the feature articles, two-fifths in the campus news.

**This was lowest for the pre-1930 undergraduate alumni. It is also interesting to note that 1) about one-quarter of those who did not receive Technology Review made some suggestions, and 2) those with high or low readership of Technology Review had about the same tendency to make suggestions.

The many comments made about Technology Review covered a broad spectrum. The majority of those who receive the magazine made only positive comments about the magazine or combined favorable comments with suggestions for improvement. Some alumni made only critical comments, and some offered suggestions without evaluating the magazine per se.* Not surprisingly, those respondents who expressed greatest satisfaction with Technology Review tended to be the more faithful readers.

Other Information Needs. After commenting on Technology Review, the respondents were asked if there was any particular information they would like to have from M. I. T. (beyond that provided by the Review) or if there were any things about which they would like to be kept informed. Over half mentioned one or more interests in response to this question.**

-- Institute news (25 percent). Includes news of what is happening on campus, student life and activities, major policies or directions.

-- Department related activities (25 percent). Includes write-ups on faculty members and their research, curriculum changes, research activities or trends within a department or field, and lists of publications or theses.

-- A calendar of events and activities on campus (20 percent of the Boston area alumni).

-- Alumni register, student or staff directories (5 percent).

-- Miscellaneous (10 percent). Includes news about classmates, lists of faculty members who can consult, services for alumni (such as alumni address services, continuing education programs, placement services, or summer courses).

*About one-sixth of those who receive the magazine made no evaluations or suggestions and therefore did not fall into any of these groups. The majority of those offering no opinions read Technology Review very little.

**The more recently graduated alumni are more likely to be in this group (though still about one-third of the pre-1930 undergraduate alumni are in this group). Those who do not receive Technology Review tend to have a higher proportion mentioning an information need, and those who receive it but don't read it much tend to have a lower proportion mentioning an information need.

As to how to get this additional information to alumni, about one-fifth of the entire sample specifically suggested some form of newsletter or newspaper-type publication.

To summarize alumni interest in more or different kinds of communications: about one-third of the sample spontaneously mentioned a need when asked if communications from M. I. T. gave them what they wanted to know; about one-half had suggestions on how Technology Review could better serve their needs; about half mentioned an interest in information beyond that provided by Technology Review. While there are duplications among these groups, taken together they account for approximately three-quarters of the sample.*

There are a variety of reasons for alumni interest in communications -- to maintain personal ties (by reading about familiar people and events), to share in M. I. T.'s development and prestige (by ascertaining that things are going well), to get specific technical or professional information, to span the years and distance between themselves and M. I. T. Given the diversity of expectations and needs among alumni for communications, it is difficult to establish a single well-defined measure of how well M. I. T. is doing in this area. But given the substantial levels of interest in M. I. T. and the desire for more or different kinds of information, there is clearly a potential for further creative efforts.

C. Service to Alumni

An important dimension of alumni relations involves ways in which the Institute can be of direct service to alumni. When asked if there were any ways in which M. I. T. could have been more helpful to them since they left the Institute, one-fifth of the alumni said yes.** Half of those who felt M. I. T. could have been more helpful mentioned job placement, either from the employee's or the employer's point of view. This was

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*If one excludes those whose only need was a suggestion on Technology Review, then three-fifths of the sample indicated some wish or need for information from M. I. T. in addition to (or in place of) what they are now getting.

**Within the 80% who said no, 15% of the sample said they didn't really expect anything, 12% said they haven't needed or taken advantage of any services, 15% said the services were there and that they had used them, and the remaining 38% (to total 80%) just said no, they could not think of anything, or that they had no complaints. The differences between graduate school and undergraduate alumni were insignificant. There seemed to be a relationship between need for services (M. I. T. could have been more helpful) and use of services offered by M. I. T.: the pre-1952 Classes expressed the least need (16%) and the most use (20%), compared with the 1952-62 Classes which expressed the greatest need (27%) and the least use (7%). The 1963-73 Classes were in the middle, with expressed need at 22% and use of services at 16%.

higher for the more recent Classes.* One-third of those who thought M. I. T. could have been more helpful mentioned needs for technical information or continuing education.** A few alumni made comments referring to ways in which M. I. T. could have been more responsive to a particular request.

Continuing Education. Since the issue is one that is raised frequently at various alumni meetings, we were surprised by the relatively low spontaneous mention of continuing education by alumni in the sample. We had expected that alumni might refer to continuing education when they were asked: 1) what they saw as M. I. T.'s mission for the future, 2) if and how they could see themselves becoming more involved with M. I. T. or alumni programs, or 3) if M. I. T. could have been more helpful to them after they graduated. Only eight percent of the respondents (in total) referred to their own need for continuing education programs in responding to these questions.

On the other hand, when directly asked if they had any needs in the area of continuing education, about half said yes. (This was even more true for those in the Classes from 1941 to 1973.) The reasons for the sizable difference between this response and the proportion who mentioned such needs spontaneously are not clear. We are currently trying to sort through a variety of factors mentioned by the respondents (such as time, cost, location, length, type and objective of program, subject area, attitude toward M. I. T., etc.) in order to come up with a realistic assessment of what these needs are and how M. I. T. might be of service in meeting them. It would appear that alumni needs for continuing education are not sufficiently well-defined or compelling to warrant spontaneous mention, or that alumni do not see how M. I. T. could be an appropriate resource for meeting these needs.

Some salient features of the problem can be seen, however, by examining briefly the continuing education programs that alumni have already taken (excluding formal graduate school programs). Over two-thirds of the alumni have taken at least one such program, and most of these

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*Mention of a need for job placement services was made by 10% of the sample (13% for the Classes of 1952-73, and 7% for the pre-1952 Classes).

**Mention of need for technical information or continuing education was made by 7% of the sample (9% for the Classes of 1930-62, and 3% for the older and the more recent Classes).

people have taken more than one. Types of programs mentioned most often were courses, short symposia, or short seminars, and most were taken within commuting distance of home. The reason most frequently given for taking a program was a specialized, job related need. While less than five percent of the programs taken involved M.I.T., about half the programs were taken at colleges or universities (more at private than at public institutions). The remaining half were divided between company offered programs and those offered by other organizations, such as professional societies. As one might expect, a high proportion (about one-quarter) of the programs were taken in some field of management (mostly by people who majored in science or engineering at M.I.T.).

The extent to which M.I.T. alumni have a need for continuing education programs or services that can conceivably be met by the Institute remains to be seen. We hope that further study of information from the survey, coupled with discussions with faculty and staff, will help to clarify this picture.

D. Potential for Alumni - M.I.T. Involvement

In order to assess the potential for developing a more active partnership between M.I.T. and its alumni, we examined several indicators of alumni involvement -- or possible involvement -- with the Institute. These indicators include the degree of interest in M.I.T., the level of recent activity with M.I.T., and the extent of knowledge about M.I.T. Each of these indicators was assessed from a reading of the entire interview.

Using these three indicators, the survey shows that in our sample there are about 15 percent who are already closely involved with M.I.T.; these alumni are active, interested, and knowledgeable.* They also are more likely to:

-- have been vocal in expressing their opinions about M.I.T. in the survey,

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*No particular subgroup in our sample dominates this core group. Proportion of alumni who are active, interested, and knowledgeable:

Total Sample (14%)	Undergraduate (14%)					Graduate School Only (14%)		
	63-73	52-62	41-51	30-40	pre-30	63-73	52-62	pre-52
	11%	13%	18%	18%	10%	14%	18%	10%

-- be involved in a variety of activities and commitments outside their work and family,

-- have been on campus within the past five years,

-- live in the eastern half of the country,

-- receive Technology Review, and

-- feel that it was very important for them to have attended M. I. T.

At the center of this core group are the alumni officers -- the men and women who form a nucleus for the Institute's partnership with alumni.

Beyond this core group, it becomes more difficult to characterize the potential for greater involvement. A general estimate supported by the survey data is that about three-fifths of the alumni population, including those already closely involved, represent a good potential for becoming more closely engaged with the Institute. This overall estimate is supported by a number of indicators of alumni attitude toward M. I. T. :

-- their goodwill for the Institute (3/4 of the sample),

-- their interest in M. I. T. and its activities (3/5),

-- their requests for more or different kinds of information and their suggestions on communications (3/5),

-- their involvement with the Institute or in alumni programs during the last several years (3/5), and

-- their visits to the campus within the last five years (3/5).

Alumni have many reasons for becoming involved with the Institute -- generally to stay close to a place that has been important in their lives; to maintain ties with friends and colleagues; to avail themselves of programs, services, or contacts that may be helpful professionally; to share in the prestige of association with M. I. T. ; and to return some measure of service to the Institute, by assisting in the admissions programs, in financial development, or in the development of Institute programs, for example. Most people who stay in touch with M. I. T. have more than one reason for doing so.

The potential for involvement with the Institute is lower for the other two-fifths of the alumni population. Again, there are multiple reasons for this. Among this group are some who have strong negative feelings about M. I. T. or their experiences here.* There are others who, because of attitude or present circumstances, feel no real ties to or interest in M. I. T. at present. They may have stronger ties with other schools, they may not have ties with any schools, or they may have young children and be busy building their careers. Some of these people see closer involvement with M. I. T. as something to come in later years. For the moment, however, their attitude is basically neutral.

To summarize our assessment of alumni involvement with M. I. T. : there is a core of alumni, about 15 percent, who are already interested, knowledgeable, and actively connected with the Institute. Many more beyond that seem to have reasonable potential for more active associations with M. I. T. Overall, we estimate that there are as many as 30,000 alumni (or 60 percent of the alumni represented by our sample) whose interests and creative energies might find greater resonance with M. I. T. -- if the Institute knew how to meet their interests and needs. These needs vary in intensity as well as in kind. To some alumni, greater involvement will come through services M. I. T. might provide to them now or in the future. Other alumni would like more opportunities to be of service to the Institute. Some alumni want both. In any event, it is clear that a closer association with M. I. T. should further the goals or otherwise provide satisfactions for alumni on their own terms. The survey does not specify how this can be achieved, but it does show that there is a potential to be tapped, and points to some directions to explore.

*While some of those who have low potential involvement expressed negative feelings about their experiences here, some of those who are closely involved also mentioned negative experiences.

IV. AGENDA FOR THE FUTURE

We promised ourselves at the beginning of the survey that the results would not wind up simply as a massive document, but that we would make every effort to disseminate the findings of the survey to those who could use it, in a form most appropriate to their particular needs. In this sense, the final report of the survey should be a chronicle of the changes, improvements, or program plans that result, either directly or indirectly, from the survey.

On September 14, 1974, five months after the first interview was conducted, we began the reporting phase of the survey with a preview of the results and subsequent discussion at the Alumni Officers Conference. Over the next several months, we hope to continue such discussions along several fronts.

First, we plan to discuss the survey findings with alumni groups in Cambridge and in other cities, either informally or as part of planned activities. This could be done at our initiative or at the invitation of interested groups or individuals. These discussions will sharpen our understanding of alumni attitudes and views of M.I.T., and will help to clarify some of the issues left unresolved in the survey. For example, it would be instructive if graduates from different decades were to meet and compare their reactions -- while students and now -- to the ethic of hard work, the pressure, the austerity of the campus, and the spirit of competition which were identified in the interviews as unique descriptors of the M.I.T. environment.

Second, we will raise specific questions of policy and program suggested by the survey, and will pass on to the appropriate offices or groups at M.I.T. the specific suggestions made by the respondents in each area. The intent here is to see that these suggestions are not lost in the general impressions and reactions to the survey.

A third step involves further analysis of the survey findings. This will include an examination of the attitudes and views of the alumni and alumnae in the special samples, as well as a further exploration of some questions raised in this report or in people's reactions to it. For example, we are trying to gain a better understanding of alumni needs for continuing education, since the first round of our analysis in this area has not yielded information which could be used for planning purposes.

In the course of the survey, we have come to know many people -- those who praise and those who criticize the Institute -- whose collective memories of M.I.T. hold pleasure, accomplishment, ambivalence, resentment, and pride. We talked with people who see M.I.T. as a continuing part of their lives, and with those who feel that the Institute and they have nothing more to do for each other. And we talked with those who felt as one graduate did:

> I'd just like to feel closer to M.I.T. and have the feeling that someone there cares that I still be a part of the community. I really would like to feel closer -- I don't know whose fault that is.

Another alumnus observed:

> My commitment is to people, not the Institute. The question is, who are and where are the right people, and how do you create bridges?

The purpose of this report has not been to answer these questions, but rather to invite all M.I.T. people to join in creating the right bridges and achieving a working relationship which is mutually rewarding. At the Alumni Officers Conference last fall, we concluded our report with some additional questions which were either directly suggested by alumni or were reinforced by what they have said to us about M.I.T.

One question is prompted by alumni comments on their experience as students at M.I.T.:

> How can the total living and learning experience of M.I.T. students better support and enhance the superior education they receive at M.I.T.?

Recalling that the reality of M.I.T. is in some measure what alumni think it is, a related question is:

> How can the Institute communicate to alumni the changes it makes -- or has made -- in these areas? More generally, how can it communicate most effectively what M.I.T. is like today?

Alumni in the survey made a variety of comments and suggestions about the Institute's current communications efforts, with some suggesting the possibility of broadening information channels to include communication between current students and alumni, and others commenting on M.I.T.'s visibility in the public media.

Another question is suggested by the variety of ways in which alumni relate to the Institute:

> How can these pluralistic connections be supported, and how can the Institute be made more accessible to alumni?

Several people suggested ways in which M.I.T. could keep track of alumni interests, professional pursuits, and of the ways their careers are changing -- so that the Institute could serve alumni better, and could support the variety of interests and ties they have with M.I.T. One such possibility might be to organize alumni information and activities with a greater emphasis on professional fields of interest (in addition to Class). This may be particularly important in view of the fact that the alumni population is composed more and more of those who were at M.I.T. only as graduate students* -- those whose interests in professional ties are well established.

Alumni in the survey suggested a variety of additional services that M.I.T. might provide to individuals or groups with particular interests or affiliations. These suggestions include ways of making it easier for alumni to get in touch with someone at M.I.T., to keep current in their professional fields or to learn more about emerging fields, or to keep in touch with other alumni with similar interests.

Still another question:

> How can the help of more alumni be enlisted for Institute programs both on and off campus?

Some 1,000 alumni now serve as Educational Counselors, helping young people decide if M.I.T. is the place for them and helping M.I.T. select from among those who apply. Still others assist each year in the activities of the Alumni Fund. Some, through their companies, are involved in the Institute's Industrial Liaison Program. This year M.I.T. hopes to expand the size of that program. How can -- or should -- alumni help toward this goal? M.I.T. has a large number of programs for students which are built on field experience, internships, or research that takes place

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* According to a 1973 study of alumni population trends reported by Glenn P. Strehle, Class of 1958, the proportion of the alumni population who were here only as graduate students is expected to grow from the current figure of 33%, to 40% by 1977, and to about 50% by the end of the century.

off campus. Would it be possible to draw more on the professional advice and resources of alumni in order to enhance these and other kinds of educational opportunities?

None of these questions are easy to answer. But they present an exciting challenge: how to reach out and to open up in ways that will make M.I.T. a more accessible, more vigorous, and stronger institution. Part of what has to be done rests with the Institute, and part with the alumni. Most will be accomplished by working together.

APPENDIX:

SURVEY BACKGROUND, METHODS, AND SAMPLE

A. Origins of the Survey

The survey began to develop in November, 1973, when Max Seltzer, Chairman of the Committee that was planning the 1974 Alumni Officers Conference (AOC), suggested that grassroots input from alumni around the country might be a special feature of the 1974 AOC, since it would mark the 100th anniversary of the Alumni Association. He viewed the event as the kickoff of an important new period in the Institute's development of relationships with its alumni. This view was shared by many, for the reasons discussed in the introduction to this report. One way of getting in closer touch with the feelings and attitudes of M.I.T. alumni was to conduct an in-depth survey of a broad cross section of alumni from around the country. The AOC was seen as an appropriate forum for presenting the findings of such a survey.

The concept of an alumni survey was also a natural outgrowth of a project started early in 1973 by the Analytical Studies and Planning Group. This project was aimed at studying M.I.T.'s efforts to communicate accurately and effectively the educational and other programs and activities of the Institute to groups outside the immediate M.I.T. community. A basic objective of the project was to develop, in cooperation with the various groups that use or produce this information, a broad picture of M.I.T.'s information dissemination activities, including their objectives, effectiveness, and suggestions for possible improvement.

In order to provide a framework for articulating this picture, the project focused on target audiences rather than specific publications or media. Obviously, the alumni audience was a key component of this developing picture, and when the idea of a survey germinated in the AOC Planning Committee, many people had already given considerable thought to the kinds of things one would like to learn from a survey of our alumni.

B. Planning

Vice President Constantine B. Simonides, a member of the AOC Planning Committee, assumed overall responsibility for the planning and development of the survey on behalf of the Institute. The day-to-day direction of the project was assigned to Kathryn Lombardi and David Wiley, Associates in the Analytical Studies and Planning Group in the Office of the President and the Chancellor.

To assist in exploring the feasibility of such a survey and in mapping out the methodology, we called on Douglas Williams of Douglas Williams Associates, Inc., New York, and Osgood Nichols of Osgood Nichols

Associates, Inc., New York, both with extensive experience in attitudinal surveys. Mr. Nichols helped convince us that a survey of alumni was both necessary and possible, and has advised us throughout the project. Mr. Williams persuaded us from the beginning that we should do the survey ourselves, rather than hire an outside organization. He helped to conceive the plan, train the interviewers, and guide the project from its inception to the organization of this report.

Once the feasibility of such a project was reasonably clear, we began to enlist the involvement of many people, both inside and outside the Institute. It became clear that if the survey itself was an important communications process, so was the process of developing it.

During this development period (the winter of 1973-74), we conferred frequently with Donald Severance, Executive Vice President of the Alumni Association. We also discussed the survey with the current and recent presidents of the Alumni Association, and with various other alumni officers.

Several M.I.T. faculty members provided input to the methodological development, including Professors Lotte Bailyn and Alvin Silk of the Sloan School of Management. Professor Bailyn has served as our academic advisor throughout the project, providing invaluable review of the various phases of the survey.

Throughout the planning stages we periodically sought advice from members of the Academic Council and other members of the administration to explore with them the plans for the survey, and to ascertain their views on how the survey might be of assistance in their work. Among those we talked with were people from: Admissions, Financial Aid, Center for Advanced Engineering Study, Educational Council, Resource Development, Student Affairs, and the resident staff of the Alumni Association. Periodic meetings with the AOC Planning Committee also were held.

In addition, over 50 randomly selected alumni from around the country had a vital role in the pretest stages, as we tested and reshaped our ideas through actual interview experience. Overall, well over 100 individuals contributed to the planning and development of the survey.

C. Format for the Interview: the Interview Guide

One of the primary objectives of the survey was to establish a meaningful dialogue with a representative group of alumni. The process of carrying out the survey was, therefore, of equal importance with the final results, and significantly more important than simply collecting large amounts of

raw quantifiable data. We concluded that a discussion format was needed in which alumni would have an opportunity to express their views in their own words and to clarify their opinions. We needed not only the pro and con positions of alumni on various issues, but also the reasons behind their attitudes. These considerations ruled out a conventional questionnaire which asked for yes/no or agree/disagree responses. Our planning therefore proceeded on the premise that the survey would be conducted using a personal interview format.

After extensive discussions with the various alumni, faculty, staff, and consultants who were involved in the development of the survey, it became clear that there were literally hundreds of issues that could be raised with alumni, and we did not want to close off any of these by being overly directive in the kinds of questions we would ask. It was necessary to develop some form of written "interview guide" to assist the interviewers in conducting the interviews. The process of developing the interview guide required that a balance be found between our concern for open-endedness (so that respondents could raise as many specific issues as they wished) and a need for methodological rigor (so that there could be reasonable comparability among interviews). Thus, the guide was designed to proceed from the general to the specific, so that earlier questions asked by the interviewer would not overly suggest specifics to the respondent and so that both thoughtfulness and spontaneity in areas of concern to the respondent could be encouraged and maintained.

Basically, each question on the interview guide covered a general area defined at the top of a page (with the rest of the page blank for recording the response). In most cases the general question could have included scores of specific sub-questions, but we chose not to ask these, because we felt that if we opened a general area, and then listened, we could learn more. For example, in the area of students, we could have asked for feelings about women students, minority students, dress styles, admissions standards, geographical distribution, income distribution, comparison between past and current students, graduate versus undergraduate students, and so on. We simply asked if they had any comments on the quality or composition of the student body, and found out what was on their minds.

Each of the general questions was phrased carefully, so that it was value-neutral (did not bias responses in any particular direction) and so that it did not force the respondent to take a position in an area that he or she did not wish to. (We hoped to make it comfortable for the respondent to say, for example, "I don't know" or "That doesn't interest me very much.") Each of the general questions was the same in each of the interviews. The interviewer wrote down on the interview guide the respondent's exact words, with no paraphrasing, and noted in the margin if a particular

response was given with a higher than usual intensity of feeling. Once a general area had been opened, the interviewer was responsible for probing further for clarity and understanding, using a fairly restricted set of neutral questions, such as "Do you mind telling me why you feel that way?" or "I'm not sure I understand; can you give a specific example of that?"

The interviewer's primary responsibility was to listen in a "neutrally responsive" way, and to record faithfully what was being said. Respondents were not discouraged from initiating discussion in subject areas in which they were interested, regardless of the order in which those subjects might appear (if at all) in the interview guide. Therefore, the interviewer had to be prepared to follow the respondent's train of thought, wherever it went. The general assumption with this format was that within the framework of the general questions, the respondent would feel free to discuss whatever was most important to him or her. The data should be interpreted in this light.

We decided early on that a telephone format would provide the best opportunity to realize our objective of providing an open-ended, discussion interview, and would provide obvious benefits in terms of budget and centralized control (for reliability) of the interview process. In-depth interviews of a representative sample population can elicit a highly reliable, comprehensive, and informative response, and if properly evaluated, can measure (perhaps more easily than questionnaires) a full range of opinion and intensity of response. The telephone format has the advantage of allowing direct person-to-person contact without the expense or the possibly inhibiting effect (when the interviewer is taking comprehensive notes) of face-to-face interviews. Presumably in part because the telephone has become such a familiar communications medium, very few alumni declined participation because this format was used.

As we came to grips with the specific development of the interview guide, our first step was to define the general areas of interest that we wished to learn about. This work helped us to define the interview questions needed to encourage discussion in those areas. A brief outline of the general areas that were probed in the survey follows.

At each stage in the development of the interview guide, the senior group directing the survey tested it with specially selected and randomly selected alumni from around the country. From these experiences, we constructed the final version of the guide. It was designed to encourage the respondents to express themselves fully, and in their own words. It also enabled us to get a more detailed picture of their feelings and attitudes on certain important matters.

OUTLINE FOR THE INTERVIEW GUIDE

I. Attitudes and Perceptions of M.I.T.

- A. Opening question: respondent's general views or image of M.I.T.
- B. Comments on strengths and weaknesses (to amplify general views)
- C. Opinions on recent trends and future directions
- D. Invitation to comment further on: role of private education in the future; composition or quality of the student body

II. Communications between Alumni and M.I.T.

- A. Comments on current flow of information to respondent (does it give what he or she wants to know)
- B. Views on Technology Review (three short questions on whether respondent reads it, what he or she finds most interesting or valuable, and possible suggestions for improvement)
- C. Additional information needs of respondent
- D. Communications from alumni to M.I.T.: comments and suggestions

III. Involvement of Alumni with M.I.T.

- A. Respondent's involvement with M.I.T. after student here (what activities)
- B. Interest in becoming more involved or active with M.I.T.
- C. Ways that M.I.T. might be more helpful to alumni (based on respondent's own experience)
- D. Continuing education (three questions regarding the respondent's needs, ways M.I.T. might address these needs, and reactions to programs he or she has attended)

IV. Perception of M.I.T.'s Financial Situation

- A. Perceptions of M.I.T.'s financial needs
- B. Suggestions on how M.I.T. might increase its financial resources (in general)
- C. Importance of financial support from alumni; identification of areas alumni might support

V. Respondent's Background

- A. Identification by respondent as an M.I.T. graduate and importance of having studied at M.I.T.
- B. Willingness to attend M.I.T. again, if of college age
- C. Ways alumni think of their association with M.I.T., if any (class, department, living group, individual people or activities, alumni club, etc.)
- D. Respondent's level of involvement in professional or community activities
- E. Demographics

D. Selection and Training of Interviewers

The interviewing approach we decided upon required skilled interviewers. Many of the interviewers were doctoral students at the Institute* and some were from the M.I.T. staff. There were many alumni among the interviewers -- including some older alumni from the Boston area who volunteered to help with the survey.** All non-M.I.T. people hired were especially qualified in terms of professional interviewing or counseling experience.

Interviewers were carefully screened for personality characteristics, voice, commitment to and understanding of M.I.T., and ability to listen. Only 15 of the initial 100 applicants were selected. We also attempted to match the age, sex, and race of a respondent to that of an interviewer whenever possible. Almost all male alumni prior to the Class of 1950 were interviewed by men; almost all alumnae were interviewed by women; and most black respondents were interviewed by black interviewers.

Over a two-day period, our staff and consultants conducted an intensive training session for the interviewers. The session included a brief history of M.I.T., highlighting what M.I.T. was like during various phases of its development, so that all interviewers would have a common basis of understanding when conducting interviews. A detailed picture of the organization and programs of the Alumni Association, including an outline of the content of Technology Review, was presented, as well as a list of important names, dates, and places that alumni might possibly refer to during the interview.

Douglas Williams discussed a wide range of specific interviewing techniques (and possible pitfalls). The motivations and expectations of the survey itself were discussed in detail and the interview guide was reviewed carefully, so that the meaning and intent of each question was clear. The interviewers then interviewed each other. The staff helped monitor this, placing strong emphasis on such skills as being an interested listener,

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*32% of the interviews were done by M.I.T. alumni (though some of these alumni were also currently graduate students at M.I.T.); 29% were done by graduate students at M.I.T. (not M.I.T. alumni); 13% were done by M.I.T. staff members; and 26% were done by non-M.I.T. persons. About 90% of the interviews were done by a core of 15 interviewers.

**Because it was important to maximize the possibility of good communications between interviewers and interviewees, five alumni from the Boston area (between the Classes of 1918 and 1947) volunteered to help interview respondents of age similar to theirs.

asking for clarification or amplification of the respondent's comments without asking leading or value loaded questions, and being able to transcribe quickly the respondent's own words.

During the week after this formal training, each interviewer completed a practice interview, which was followed by a debriefing session. These interviews also formed part of the final pretest of the interview guide.

All interviewers were carefully monitored by the staff, particularly during the first two weeks, to detect possible problems with telephone presence, with judging when responses should be probed for clarification and amplification, and with the manner in which interviews were being recorded. Problems in these areas were minimal, but steps were taken to correct them on an individual basis when they occurred.

E. Selection of the Sample

The population from which the sample was drawn included only alumni whose addresses were in the continental United States or Canada.* Although all M.I.T. degree-holders were eligible, we also included those former M.I.T. students who did not receive degrees but who had given financial support to the Institute at some time since they were students here. Because of their obviously different relationship with the Institute, all M.I.T. alumni who were currently graduate students, faculty, or staff members at M.I.T. (including Lincoln Laboratory and Draper Laboratory) also were excluded.** This left a population of about 50,000 alumni from which to select the sample.

Using these selection criteria, 489 respondents were selected*** randomly from the computer files maintained by the Alumni Association. The

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*We also randomly selected from alumni with no address on the Alumni Association file in order to monitor the overall rate of "non-participation" in the survey. We were able, in fact, to reach some of these using alternative address files.

**Although a survey of alumni currently at M.I.T. might be useful for comparative purposes, it would essentially be a separate project in terms of the questions asked, the methods used to contact and interview the respondents, and the analysis of the results.

***Done in two steps: the initial cut of the sample was made by taking every 31st alumnus (using random starts) from among those who met both the selection criteria and the stratification criteria. This provided a series of smaller populations (one for each subgroup) from which the actual sample (and replacements) were drawn, using random number tables.

sample was stratified in terms of: 1) year of graduation (roughly corresponding to decades of attendance), and 2) whether the alumnus was at M.I.T. as an undergraduate (including the possibility of continued graduate study) or as a graduate student only. This assured us a sample population representative of the total alumni group in these two respects. (The details are discussed in the next section.)

If we were unable to reach an alumnus or alumna, due to lack of address, his or her decision not to participate, etc., another name was randomly drawn as a replacement so that the representativeness of the sample along the above two stratification criteria would be maintained.

In addition to the 489 representatives of the total alumni population, we randomly selected from some special groups of alumni whose attitudes and opinions were of special interest: alumnae (stratified into four groups -- '63-'73 versus pre-'63, and undergraduate versus graduate school only status); recent black alumni ('68-'73) stratified into undergraduate versus graduate school only status;* individuals who have been leaders in financial support of the Institute; alumni officers (Educational Counselors, Club Officers, Class Officers, Visiting Committee members, members of the various Advisory Boards, etc.); and an additional sample of pre-1930 undergraduate alumni. Although all these groups are represented in the main sample of 489 in approximate proportion to their representation in the total alumni population (for example, there are 18 alumnae in the main sample), we selected the special samples in order to have sufficiently large numbers to be able to do separate analyses of the attitudes and opinions of these subpopulations at a reasonable level of reliability. These special samples bring the total number of interviews to 738. It should be emphasized that the information from these special samples is to be analyzed separately; it is not included in the data in this report, which includes only the 489 interviews representative of the entire alumni population.

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*We drew names from an existing list prepared by the Placement Office, because the Alumni Association file does not identify alumni by race.

F. Stratification of the Sample

Following the criteria discussed above, the sample population was stratified into the following eight groups (and in numbers proportional* to the representation of each of these groups in the total alumni population):

Undergraduate Classes	Graduate School Only Classes
1963-73	1963-73
1952-62	1952-62
1941-51	pre-1952**
1930-40	
pre-1930	

It is important to note, however, that age in itself was only one important consideration in defining this particular stratification, although an important one as an indicator of where alumni might be in their careers.

We also wanted the sample stratification to reflect distinctive aspects of M.I.T. and society in general at the time that the alumnus was a student here, as well as (for the older alumni) the dramatic changes in both that have occurred since then. Since the time M.I.T. moved across the Charles River from Boston in 1916, American society has undergone major social, political, and technological changes, many of which have been reflected in the activities of the Institute.

The oldest alumnus interviewed had graduated in 1908, and the youngest in 1973. Their experiences at M.I.T. span two-thirds of a century, and each intervening decade saw changes in the character of M.I.T. and of the surrounding society.

Most of the alumni from Classes before 1930 are now retired. Their M.I.T. was primarily an undergraduate engineering school with strong programs in architecture and industrial management. Most students came to M.I.T. knowing what they wanted to study. The cohort system of common freshman sections played a significant role throughout this period and each succeeding period up to the 1960s.

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*We used a proportional sample, since the various subgroups of interest were roughly the same size and most importantly, none were too small, so that the confidence intervals from random sampling would be about the same for each subgroup.

**About three-quarters of these are from the Classes of 1941 through 1951.

Alumni graduating during the 1930s were at M.I.T. during the great depression. The depression had significant impact on who could attend M.I.T. as well as on the availability of jobs upon graduation. The School of Science and the Graduate School were established in the early 1930s.

The student who attended M.I.T. during the 1940s might have been drawn by the spirit of challenge that prevailed at the Institute during World War II, or might have been one of many returning veterans. This period saw the beginning of M.I.T.'s increasing involvement in sponsored research, as well as many transient programs and facilities that were part of the war effort -- such as the temporary wooden barracks that were constructed on campus. All combined to provide a singular atmosphere at M.I.T. during this period.

The years 1952-62 were a period of relative international calm despite the cold war. The physical plant changed as a result of the mid-century fund drive. Both the Sloan School and the School of Humanities and Social Science were formally organized, and M.I.T. moved toward a broader, more diversified role. In 1957, Sputnik was launched.

During the "post-Sputnik" era, an M.I.T. student was likely to be one of many who were strongly influenced by redoubled national efforts to train more students in the sciences and in engineering. During the early and middle sixties, student preparation in high schools became more intensive. The size of both the faculty and the sponsored research effort increased dramatically. The campus changed significantly with new building funds from the Second Century Fund. The views of those who attended M.I.T. most recently may well be influenced by the shifts toward more flexible curricula and by a growing concern for greater accountability of science and technology to the needs of society.

Alumni from the decades represented in our sample are at many different stages of life, and their views of the Institute and reflections on their years at M.I.T. are influenced by too many factors to draw any single or simple picture that would explain the spectrum of thought we found on some issues. Alumni views are in part shaped by the unique characteristics of M.I.T. and the M.I.T. experience, but these unique characteristics themselves change in time. What we have in the survey is a snapshot of alumni views at a particular point. Obviously, we must be cautious about explaining too easily differences in attitude between subgroups; certainly we cannot predict what the attitudes of a particular subgroup will become by projecting from the classes just preceding them in time. To obtain such a longitudinal view would require a later survey.

G. Reaching the Respondents

After the sample was selected, a master card system was established in order to follow the progress of each member of the sample through a fairly elaborate process of locating and interviewing. Such a means of monitoring the system was necessitated by the hundreds of alumni involved, each in one of a dozen separate steps in the operation at a given time. We needed to know at a glance the status of our contact with each respondent.

The first step in the process was to verify the available information regarding address and telephone number (either through the telephone company, or through the alumnus' company if only a business address was available), to be sure the information was correct. Upon verification, President Wiesner wrote a letter to each alumnus or alumna, explaining the nature, purpose, and general objectives of the survey, and inviting him or her to participate.

If the address and telephone number could not be verified, then directly following the President's letter, Vice President Simonides wrote a special "verification" letter asking for updated information (usually for an address, sometimes an unlisted phone number) so that we could get in touch. We did this under the assumption that mail would be forwarded; we wanted to make every reasonable attempt to contact the alumni in our sample. This turned out to be an extremely effective technique, particularly in reaching the more recently graduated alumni, who tend to be more mobile and whose addresses on the alumni file are less reliable. In fact, of the 132 verification letters sent, 85 (or 64 percent) were filled out and returned to us, with over 90 percent of these eventually being interviewed as a result.

After an alumnus had sufficient time to receive and read President Wiesner's letter (or after we had received response from the verification letter), a member of the survey staff telephoned to determine the respondent's interest in participating and to set up a specific appointment time for the interview, at the respondent's convenience. The staff setting up appointments were prepared to answer general questions about the survey, but did not define what the specific survey questions would be. We had decided not to give out the specific question areas prior to the actual interview, because we sought a balance between the thoughtfulness respondents would want to put into their answers, and the possibility that some alumni might "overprepare" if they were given questions in advance (by doing things they might not ordinarily do, such as "studying" Technology Review or polling other alumni to generate a broader base of opinion). This would have defeated some aspects of the intent of the survey. In fact, as part of the pretest, we asked alumni -- based on the letter received from President Wiesner -- if they felt they had to prepare in any way for the interview.

Everyone said no, but that the letter had started their thinking in general. This seemed to be the balance we were seeking: thoughtfulness without over-preparation.

In order to accommodate the schedules of the alumni, some interviews began as early as 8 a.m. and others ended as late as 1 a.m. Cambridge time. However, the matching of interviewers' schedules to respondents' requests for the peak period from 7:30 to 9:30 p.m. not only saturated our interviewing facilities on occasion, but also tested the resiliency of the staff. Though it was not always easy, we managed to interview almost every respondent at the time he or she wanted.

After an interview had been scheduled, Mr. Simonides wrote a letter to the respondent, confirming the appointment and thanking him or her in advance for agreeing to participate. The letter also provided a personal contact in case the respondent had questions either before or after the interview. Typically, the letter arrived very close to the time the interview was to take place, as we felt it important to provide each respondent with a communication channel to the Institute at a time as close as possible to the actual interview.

If, during a call to set up an appointment, an alumnus felt uneasy about participating in the survey, the caller tried to respond to any specific reservations that were expressed. If the alumnus declined to be interviewed, then the caller conducted a brief exit interview in order to understand why the alumnus did not wish to participate, and whether this decision had anything to do with his or her attitudes toward M.I.T. Although a few alumni gave an abrupt no or relayed a message through a third party, in most cases the exit interview was able to generate enough information to provide some overall feeling of the respondent's attitude toward M.I.T. (The results from the exit interviews are discussed below in the "Description of the Sample Population.")

H. The Interview

At the appointed time, an interviewer called the respondent from a suite of offices on campus. All the interviews were conducted from the same location in order to monitor and maintain uniform standards in the interviewing process, and to minimize the possibility of errors. Interviewers were overseen by a full-time supervisor who managed the process of setting appointments, matching interviewers to respondents, handling special problems, and taking care of other logistical details (such as finding a last-minute replacement if an interviewer called in sick).

At the beginning of the interview, the interviewer confirmed that this was still a good time to conduct the interview, reiterated the purpose of the interview (from President Wiesner's letter), and again assured the respondent of full confidentiality. Any questions the respondent asked about the survey were deferred to the end of the interview; generally the respondents were anxious to get started. The substance of the interview followed the interview guide, which was discussed above.

At the end of each interview, the respondent was asked: "Is there anything we haven't covered that you would like to talk about?" This open-ended closing resulted in most respondents' stating that they felt they had been able to cover pretty well what was on their minds, though some used the opportunity to amplify areas they had discussed earlier.

Over 50 alumni requested some form of follow-up which our office was able to provide (in addition to the survey report which everyone will receive). These included, for example, requests for a copy of the General Catalogue or Tech Talk. Since all respondents were promised complete anonymity and confidentiality, it was not possible to follow up on certain requests, such as to give the respondent's name to some office at M.I.T.; rather we provided the name of the appropriate person or office at M.I.T. for the respondent to contact directly.

Immediately after each interview, the interviewer reviewed the transcript and spelled out any abbreviations, made the handwriting readable, and made notations in the margin to help a future reader better understand what was being said (labeling clearly those words which were the interviewer's, rather than the respondent's). Then the interviewer wrote some summary comments -- to describe any overall themes that seemed to recur throughout the interview, to give his or her feelings about the interview in general, and to comment on the respondent's view of M.I.T., particularly any changes in view that seemed to have occurred since the time the respondent was a student here. We insisted that all this be done immediately after the interview, when everything was still fresh.

I. Analysis of the Interviews

The interviewing began in April and ended in July, although the majority were done in May and June. We are now engaged in analyzing and understanding approximately 13,000 pages of interview transcripts -- resulting from the more than 650 hours of interviews.

The coding process -- the classification of opinions and attitudes into categories of similar meaning and content -- was begun shortly after the

interviewing was in full swing. The coding categories were derived (by people who had had actual interviewing experience) from a careful reading of almost 100 randomly selected interviews. We did not conjecture a coding format and force the data to fit it; rather we used the actual interviews to guide us to the coding format. Also, we did not code just in terms of the answer to a specific question, but in fact coded themes that were volunteered by the respondent, irrespective of where they occurred in the interview. The coding was fine-structured; for example, there were over 20 separate themes (coding categories) associated with volunteered comments on the respondent's experience at M.I.T. Overall, there were 350 separate coding categories, each with its own set of codes to delineate the range of meanings within the category. This fine-structured coding was chosen because: 1) it required less subjective judgment on the part of coders in deciding whether a particular comment fitted a specific coding category (more difficult as the categories become broader or more encompassing); and 2) it allowed greater opportunity in analysis for recombining the variables in various ways and for cross-tabulating the categories to examine the possible interrelationships within the data. Because we were coding volunteered comments in most cases (rather than the answers to specific, easily coded questions), many of the coding categories had a low frequency of response -- often making variable recombinations of related categories a necessity from the standpoint of numerical significance.

The development of the coding frame continued through the end of June. Six coders (four of whom had been interviewers) were given an extensive four-day training -- on the general theory of coding, on the specific meaning of each of the coding categories, and primarily on actual practice, in order to calibrate their work to each other's. The coding of a practice interview was followed by extensive discussion, particularly in places where the coders disagreed. This training process also helped to refine further and finalize the coding frame and instructions. The coding was done during the latter part of June and most of July. The coding process was carefully monitored by a staff supervisor, who resolved marginal coding situations in a consistent manner. It should be noted that the coding went more slowly than we intended because of the coders' own scruples (articulated almost daily) about putting the human variety that they saw in the interviews into coding categories.

In addition to this "microcoding," the alumni survey staff themselves coded some "global" qualities, namely interest in M.I.T., knowledge about M.I.T., level of activity with M.I.T., disposition toward M.I.T., and experience at M.I.T. These were coded after a complete reading of a transcript, and integrated whatever information was available to make a coding judgment. They provide an overall calibration because they are broadly defined and were coded by only a few people (those most familiar

with the survey) in order to minimize between-coder variances.

In addition to coding, the coders also flagged particularly notable quotations and suggestions -- which were later put on cards and filed by subject area. This card file provides an additional resource of quotations that represent the various themes that emerged, and it provides a quick overview of the kinds of things alumni were saying, retaining the richness of language and perspective.

The next step was to keypunch the coding sheets and construct computer programs to display the frequency distributions of the various themes. We are now in the process of refining the data base further. Most of the initial analysis has dealt with the data in terms of distributions among the various subgroups. The next phase is to examine more systematically other relationships that may exist in the data, and in particular, to begin to develop certain general typologies of the various segments of the alumni population.

Perhaps the most important aspect of the analysis, however, is to stand back from the detailed data, to view in broad perspective the whole process in which we have been involved, and to ask "What are alumni really telling us?" This has been initiated in discussions among those most closely associated with the survey: the senior group, staff, interviewers, coders, analysts, etc. -- those who conducted interviews and those who have read considerable numbers of transcripts. This discussion and integration perhaps best reflects the broader significance of the survey as a communications process, for it acknowledges the fact that we conducted whole interviews and captured snapshots of integrated sets of thoughts on a variety of connected issues. The statistical data can serve to support this perspective, but not to replace it. Of course, the challenge now is to engage an ever-widening group of people so that more experiences and more points of view will develop the perspective further. It is this ongoing dialogue, a process of communication which continually tests and reshapes this perspective, that is the real overall "analysis" -- and only from this process can appropriate action flow. Data from the survey can serve as an important catalyst in this process.

J. Description of the Sample Population

This section, containing a description of the sample population, is followed by a series of tables delineating the sample characteristics by subgroup.

Basic Stratification of the Sample. Table A shows the distribution of the 489 respondents in the main sample -- by year of graduation and by undergraduate versus graduate school only status. Because the sample was stratified along these dimensions, the close fit to the distribution within the total alumni population is not surprising. Table A also shows the sizes of the special samples that were drawn, bringing the total to 738 interviews.

Total Population Drawn and Rate of Participation. Table B shows the details of the total population drawn in order to achieve the desired number of interviews, as well as the rate of participation from each subgroup. Including all the replacements that were necessary, a total of 977 names were randomly drawn in the survey. Of these, 29 were eventually disqualified because they did not meet the selection criteria. Overall, 11 percent of the alumni drawn could not be reached, primarily because of address problems, and an additional 11 percent declined the interview (although this varied greatly with age). The overall response rate of 78 percent is very high compared with most survey results, and would be closer to 83 percent if one did not include alumni from Classes prior to 1930, a higher proportion of whom declined the interview. It is particularly gratifying that every one of the alumni officers drawn in the sample agreed to participate.

The dominant reason for the high refusal rate of the pre-1930 alumni was ill health, followed by feelings that they could be of little help because they had been away too long or had changed fields. (Expressions of modesty were much more prevalent among pre-1930 alumni.) Among the other groups (whose refusal rates were much lower), the dominant reason was being busy -- going on a trip, having a full or unpredictable schedule, moving, etc. Overall, the rate of refusal because of negative feelings toward M.I.T. seemed to be low. From the exit interviews we learned that in declining the interview, over two-fifths made directly positive statements of support for M.I.T., and an additional one-quarter said their reasons for refusing had nothing to do with their feelings about M.I.T. Less than one-fifth of those who declined to be interviewed expressed mixed or negative feelings toward M.I.T.

The average interview in the main sample lasted 53 minutes. There was little variation in the mean interview time among the various subgroups. The highest average interview time was 57 minutes for the pre-1952 graduate school only alumni, and the lowest average time was 46 minutes for the 1952-62 GSO alumni. The other groups were within three minutes of the 53-minute overall average. The longest interview lasted two hours, and the shortest one lasted 20 minutes.

Distribution by M.I.T. School and by Place of Residence. Table C shows the distribution of the main sample by M.I.T. School in comparison with the distribution within the total alumni population. There are no significant differences between the sample and the total alumni population for any of the subgroups or the total. The same is true in Table D, which shows the distribution of the main sample by place of residence. Table C shows the dominance of engineering graduates in the sample, as well as the growth of the School of Science and the School of Humanities and Social Science over the past several decades. Table D shows that over half of our alumni live in or near major areas of alumni concentration (Boston, New York, Philadelphia, Washington, Chicago, San Francisco, and Los Angeles), with almost one-fifth still living in the Boston area.

Representativeness of the Sample and Statistical Significance. With regard to the indicators examined above, the sample seems to be representative of the total alumni population. Of course, as is often the case in surveys, there may be some slight leaning in the sample toward those with higher interest or involvement. (For example, an individual for whom we do not have a correct address does not receive Technology Review, does not give financial support, and so forth.) However, the fact that our sample had an 80 percent participation rate means that the remaining 20 percent would have to be almost unanimous on a particular issue to affect the results very much. This is unlikely, because even on an issue such as disposition toward M.I.T., we have found that even among those who declined to be interviewed, the majority seemed positively disposed toward M.I.T. (like three-quarters of those we did interview).

Since the sample was drawn as a random probability sample within each stratum, the response of the 489 alumni on a given issue represent our best estimate of what the equivalent figures would be had we obtained data from all alumni, subject to normally expected sampling fluctuations. Estimates of the interval around a particular response value within which we would expect to find the true figure for the alumni population as a whole depend upon the size of the various subgroups in the sample and on the specific distribution of the responses on the particular issue. For issues on which the responses are within the 20 to 80 percent range, some conservative estimates for the confidence intervals are:

-- plus or minus 15 percent for each of the subgroups in the sample;

-- plus or minus 10 percent for the total graduate school only sample; and

-- plus or minus 5 percent for both the total undergraduate sample and the total sample.

The statistically minded reader who is concerned about inferences to the total alumni population can append these intervals to the data given in the report.

As a rough rule of thumb for this study, differences between any two subgroups on a particular response should exceed 20 percent to be considered significant, and differences between undergraduate and graduate school only alumni on a particular response should exceed 10 percent to be considered significant. The term significant is used to mean both statistically significant -- the probability of differences arising by chance alone, through sampling, are small (less than 5 times out of 100) -- and substantively significant -- the differences are viewed as important enough, in our judgment, to merit comment.

Distribution by Number of Years at M.I.T. Table E displays the fact that while four-fifths of the undergraduate alumni in our sample spent at least four years at M.I.T., almost three-quarters of the graduate school only alumni spent less than four years here. Note also the higher proportion of undergraduate alumni from the 1941-51 period who were here less than four years.

Distribution by Highest Degree from M.I.T. Table F shows the distribution of the sample by highest degree received from M.I.T. Overall, the proportion of alumni in the sample who do not hold M.I.T. degrees is small (6 percent); these came primarily from the older undergraduate classes. About one-fifth of the undergraduate alumni in our sample also earned advanced degrees at M.I.T. It should be recalled that the sample excludes alumni who are still at M.I.T., which will eventually increase the proportion of the 1963-73 undergraduate group receiving higher degrees, since some are still here earning advanced degrees. Although there has been a major increase over the last several decades in the proportion of graduate school only alumni who receive doctoral degrees from M.I.T., this group is still dominated by those who were here in master's programs.

Distribution by Employment Characteristics. Table G shows the current job status of the sample. Almost one-third of the undergraduate alumni from the past five years are still in graduate school (by definition of our sample selection criteria, not at M.I.T.). Table H shows the distribution

by type of employer. The differences between undergraduate and graduate school only alumni in the proportion employed by nonprofit institutions, and particularly government, are clear. Table I exhibits the distribution by job responsibility of the sample. Graduate school only alumni are more likely to hold faculty positions than undergraduate alumni. Most significant, though, is the fact that over half of the alumni who graduated more than a decade ago hold positions in general management or technical management (or did before retirement).

TABLE A

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Distribution of Sample, by Subgroup

MAIN SAMPLE	Number of Alumni Interviewed	Distribution within Sample Population	Distribution within Total Alumni Population
Undergraduate Classes			
1963-73	75	15%	16%
1952-62	77	16	15
1941-51	74	15	15
1930-40	51	11	10
pre-1930	49	10	11
Total UG	326	67%	67%
Graduate School Only Classes			
1963-73	63	13%	13%
1952-62	50	10	10
pre-1952	50	10	10
Total GSO	163	33%	33%
MAIN SAMPLE TOTAL	489	100%	100%
SPECIAL SAMPLES*			
Alumnae	9 (116)**		
Gift Leadership	35 (48)		
Alumni Officers	40 (55)		
Black Alumni -- 1968-73	51 (54)		
Undergraduate Alumni -- pre-1930	25 (74)		
SPECIAL SAMPLES TOTAL	249		
GRAND TOTAL	738 interviews completed		

*These interviews are not included in the data presented elsewhere in this report.

**The figures in parenthesis show the total number of interviews in each group that are available for analysis. The higher figure results by adding into the special samples the appropriate interviews from the main sample, as well as duplicates that occurred (the alumnus or alumna was drawn in two subgroups).

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TABLE B

Status of Total Sample Drawn, by Subgroup

MAIN SAMPLE	Interviewed	Declined Interview	Unverified Address or Not Reached	Address Not Known	Total	
Undergraduate Classes						(N)
1963-73	85%	5%	6%	4%	100%	(88)
1952-62	89	6	4	1	100	(88)
1941-51	83	8	6	3	100	(89)
1930-40	75	19	2	4	100	(68)
pre-1930	53	30	10	7	100	(93)
Total UG	77%	13%	6%	4%	100%	(426)
Graduate School Only Classes						
1963-73	85%	3%	11%	1%	100%	(74)
1952-62	78	5	5	12	100	(64)
pre-1952	76	12	4	8	100	(66)
Total GSO	80%	6%	7%	7%	100%	(204)
MAIN SAMPLE TOTAL	78%	11%	6%	5%	100%	(630)
SPECIAL SAMPLES						
Alumnae	86%	4%	7%	3%	100%	(114)
Gift Leadership	83	10	5	2	100	(42)
Alumni Officers	100	0	0	0	100	(40)
Black Alumni -- 1968-73	76	9	15	0	100	(67)
Undergraduate Alumni -- pre-1930	45	33	11	11	100	(55)
GRAND TOTAL	78%	11%	7%	4%	100%	(948)*

*This excludes 29 alumni who were drawn but were not eligible for the sample (non-U. S. address upon verification, duplicate with pretest samples, deceased, currently at M. I. T., etc.).

TABLE C

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School* by Subgroup

Undergraduate Classes	Engineering		Science		Management		Arch. and Planning		Hum. and Soc. Sci.		Without Course		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1963-73	31	41%(44%)	24	32%(34%)	10	13%(8%)	2	3%(4%)	8	11%(10%)	0	0%(0%)	75	100%(100%)
1952-62	49	64%(60%)	15	20%(22%)	8	10%(12%)	1	1%(3%)	4	5%(3%)	0	0%(0%)	77	100%(100%)
1941-51	47	64%(68%)	14	19%(15%)	11	15%(13%)	2	3%(2%)	0	0%(2%)	0	0%(0%)	74	100%(100%)
1930-40	32	63%(66%)	8	16%(13%)	7	14%(14%)	4	8%(7%)	0	0%(0%)	0	0%(0%)	51	100%(100%)
pre-1930	32	65%(73%)	4	8%(7%)	11	22%(13%)	2	4%(7%)	0	0%(0%)	0	0%(0%)	49	100%(100%)
Total UG	191	59%(60%)	65	20%(20%)	47	14%(12%)	11	3%(4%)	12	4%(4%)	0	0%(0%)	326	100%(100%)
Graduate School Only Classes														
1963-73	26	41%(47%)	19	30%(25%)	9	14%(15%)	4	6%(6%)	3	5%(5%)	2	3%(2%)	63	100%(100%)
1952-62	30	60%(61%)	9	18%(20%)	6	12%(12%)	3	6%(5%)	2	4%(2%)	0	0%(0%)	50	100%(100%)
pre-1952	34	68%(69%)	13	26%(22%)	1	2%(3%)	2	4%(5%)	0	0%(1%)	0	0%(0%)	50	100%(100%)
Total GSO	90	55%(58%)	41	25%(22%)	16	10%(11%)	9	6%(5%)	5	3%(3%)	2	1%(1%)	163	100%(100%)
TOTAL SAMPLE	281	57%(59%)	106	22%(21%)	63	13%(11%)	20	4%(5%)	17	4%(3%)	2	0%(1%)	489	100%(100%)

*The figures in parentheses show the distribution in the total alumni population. These figures should be viewed as approximate (to within a percent or two) when comparing them with the sample, because they pertain to a slightly different point in time and do not follow exactly the selection criteria used to derive the sample (exclusion of alumni at M.I.T.).

TABLE D

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Place of Residence* by Subgroup

Undergraduate Classes	Boston Area N	Boston Area %	Other Areas of Alumni Concentration** N	Other Areas of Alumni Concentration** %	Other N	Other %	Total N	Total %
1963-73	19	25%(21%)	27	36%(38%)	29	39%(41%)	75	100%(100%)
1952-62	15	19%(19%)	32	42%(39%)	30	39%(42%)	77	100%(100%)
1941-51	16	22%(18%)	29	39%(37%)	29	39%(45%)	74	100%(100%)
1930-40	8	16%(17%)	16	31%(33%)	27	53%(50%)	51	100%(100%)
pre-1930	6	12%(17%)	14	29%(28%)	29	59%(55%)	49	100%(100%)
Total UG	64	20%(19%)	118	36%(35%)	144	44%(45%)	326	100%(100%)
Graduate School Only Classes								
1963-73	10	16%(18%)	29	46%(35%)	24	38%(47%)	63	100%(100%)
1952-62	7	14%(13%)	20	40%(39%)	23	46%(48%)	50	100%(100%)
pre-1952	3	6%(8%)	22	44%(39%)	25	50%(52%)	50	100%(100%)
Total GSO	20	12%(14%)	71	44%(37%)	72	44%(49%)	163	100%(100%)
TOTAL SAMPLE	84	17%(18%)	189	39%(36%)	216	44%(46%)	489	100%(100%)

*The figures in parentheses show the approximate geographical distribution within the total alumni population of those alumni eligible to participate in the survey (including a correction for the exclusion of alumni at M.I.T.). However, some caution must be used in making comparisons, because of address corrections made as a result of tracking down alumni in the sample (some addresses were those of parents or incorrect local addresses, particularly in the more recent classes). Of course, alumni without known addresses were excluded from the table.

**New York, Philadelphia, Washington, Chicago, San Francisco, and Los Angeles, including surrounding areas.

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TABLE E

Number of Years as a Student at M. I. T., by Subgroup

	1 Year	2-3 Years	4 Years	More Than 4 Years	Total
Undergraduate Classes					
1963-73	0%	5%	65%	30%	100%
1952-62	3	5	56	36	100
1941-51	3	34	44	19	100
1930-40	8	18	45	29	100
pre-1930	8	20	51	21	100
Total UG	4%	16%	53%	27%	100%
Graduate School Only Classes					
1963-73	27%	38%	13%	22%	100%
1952-62	38	34	12	16	100
pre-1952	42	38	10	10	100
Total GSO	35%	37%	12%	16%	100%
TOTAL SAMPLE	14%	23%	39%	24%	100%

TABLE F

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Highest Degree from M. I. T., by Subgroup

	Bachelor	Master/ Engineer	Doctorate	No Degree	Total
Undergraduate Classes					
1963-73	79%	17%	3%	1%	100%
1952-62	65	21	10	4	100
1941-51	78	11	3	8	100
1930-40	57	18	4	21	100
pre-1930	70	14	4	12	100
Total UG	71%	16%	5%	8%	100%
Graduate School Only Classes					
1963-73	0%	59%	41%	0%	100%
1952-62	0	68	30	2	100
pre-1952	0	76	20	4	100
Total GSO	0%	67%	31%	2%	100%
TOTAL SAMPLE	47%	33%	14%	6%	100%

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TABLE G

Job Status by Subgroup

	Employed	Retired	Attending Graduate School	Not Employed	Total
Undergraduate Classes					
1968-73	64%	0%	31%	5%	100%
1963-67	83	0	11	6	100
1952-62	98	1	1	0	100
1941-51	98	1	0	1	100
1930-40	71	27	0	2	100
pre-1930	25	73	0	2	100
Total UG	77%	16%	5%	2%	100%
Graduate School Only Classes					
1963-73	97%	0%	3%	0%	100%
1952-62	98	2	0	0	100
pre-1952	80	14	0	6	100
Total GSO	92%	5%	1%	2%	100%
TOTAL SAMPLE	82%	12%	4%	2%	100%

TABLE H

Type of Employer* by Subgroup

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Undergraduate Classes	Private Business / Industry	Nonprofit Institutions	Government	Attending Graduate School	Total**	No Information
1968-73	50%	14%	3%	33%	100%	3%
1963-67	56	23	9	12	100	0
1952-62	73	16	10	1	100	8
1941-51	82	14	4	0	100	10
1930-40	87	6	7	0	100	8
pre-1930	81	8	11	0	100	0
Total UG	74%	13%	7%	6%	100%	6%
Graduate School Only Classes						
1963-73	49%	26%	21%	4%	100%	10%
1952-62	42	35	23	0	100	4
pre-1952	59	24	17	0	100	2
Total GSO	50%	28%	21%	1%	100%	6%
TOTAL SAMPLE	66%	18%	12%	4%	100%	6%

*Includes last position for those retired; excludes those not employed.

**Excluding cases for which there is no information.

TABLE I

Job Responsibility* by Subgroup

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Undergraduate Classes	General Mgt.	Technical Mgt.	Technical Staff	College/ Univ. Faculty	Other** Professional	Other***	Attending Graduate School	Total
1968-73	8%	6%	32%	3%	8%	11%	32%	100%
1963-67	6	9	23	12	26	12	12	100
1952-62	13	26	29	9	14	8	1	100
1941-51	48	18	11	9	7	7	0	100
1930-40	37	12	19	4	12	16	0	100
pre-1930	36	17	7	4	6	30	0	100
Total UG	27%	16%	20%	7%	12%	13%	5%	100%
Graduate School Only Classes								
1963-73	11%	14%	32%	22%	7%	11%	3%	100%
1952-62	26	30	16	16	6	6	0	100
pre-1952	30	28	15	17	4	6	0	100
Total GSO	21%	23%	22%	19%	6%	8%	1%	100%
TOTAL SAMPLE	25%	19%	20%	11%	10%	11%	4%	100%

*Includes last position for those retired; excludes those not employed.

**Law, medicine, architecture, planning, and consulting.

***Business staff, creative arts, elementary/secondary education, ministry, etc.